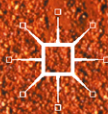


# POST-KEYNESIAN ESSAYS FROM DOWN UNDER

VOLUME I: ESSAYS ON KEYNES,  
HARROD AND KALECKI

*Theory and Policy in an Historical Context*

Joseph Halevi  
G. C. Harcourt  
Peter Kriesler  
J. W. Neville



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University of Leeds, UK*



# Post-Keynesian Essays from Down Under Volume I: Essays on Keynes, Harrod and Kalecki

Theory and Policy in an Historical Context

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Softcover reprint of the hardcover 1st edition 2016 978-1-137-47537-4

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First published 2016 by  
PALGRAVE MACMILLAN

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Palgrave Macmillan in the US is a division of St Martin's Press LLC, 175 Fifth Avenue, New York, NY 10010.

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ISBN 978-1-349-56948-9 ISBN 978-1-137-47538-1 (eBook)  
DOI 10.1057/9781137475381

This book is printed on paper suitable for recycling and made from fully managed and sustained forest sources. Logging, pulping and manufacturing processes are expected to conform to the environmental regulations of the country of origin.

A catalogue record for this book is available from the British Library.

Library of Congress Cataloging-in-Publication Data

Post-Keynesian essays from down under : essays on Keynes, Harrod and Kalecki / Joseph Halevi, Senior Lecturer, University of Sydney, Australia, G. C. Harcourt, Visiting Professorial Fellow in the School of Economics, University of New South Wales, Australia, Peter Kriesler, Associate Professor, Director of The Society of Heterodox Economists, University of New South Wales, Australia, J. W. Nevile, Emeritus Professor, University of New South Wales, Australia.

volumes ; cm

Summary: "Joseph Halevi, G. C. Harcourt, Peter Kriesler and J. W. Nevile bring together a collection of their most influential papers on post-Keynesian thought. Their work stresses the importance of the underlying institutional framework, of the economy as an historical process and, therefore, of path determinacy. In addition, their essays suggest the ultimate goal of economics is as a tool to inform policy and make the world a better place, with better being defined by an overriding concern with social justice. Volume I analyses the contributions of Keynes, Harrod and Kalecki"—Provided by publisher.

Contents: Machine generated contents note:—List of Figures—List of Tables—Acknowledgements—Keynes—1. The enduring importance of the General Theory; Harcourt and Kriesler—2. The General Theory after sixty years: history or economic laws?; Halevi—3. Notes on Keynes' aggregate supply curve; Nevile—4. What Keynes would have thought of the development of IS-LM; Nevile—5. IS-LM in macroeconomics after Keynes; Kriesler and Nevile—6. Keynes, Kalecki and the General Theory; Kriesler—7. Michal Kalecki on capitalism; Kriesler and Bruce McFarlane—8. Kalecki and modern capitalism; Halevi—9. Kalecki's pricing theory revisited; Kriesler—10. Microfoundations: a Kaleckian perspective; Kriesler—11. Kalecki, classical economics and the surplus approach; Halevi and Kriesler—12. Kalecki's conception of the economic cycle and state intervention; Halevi—13. Was Kalecki an 'imperfectorist'? Davidson on Kalecki; Kriesler—14. Answers for Steedman; Kriesler—15. Reply to Steedman; Kriesler—16. On the limitations of fiscal policy: a radical Kaleckian view; Halevi and Kriesler—17. The influence of Michal Kalecki on Joan Robinson's approach to economics; Harcourt and Kriesler—18. Michal Kalecki and Rosa Luxemburg on Marx's schemes of reproduction: two incisive interpreters of capitalism; Harcourt and Kriesler—19. The contemporary significance of Baran and Sweezy's notion of monopolistic capitalism; Halevi—20. Dynamic Keynesian economics: cycling forward with Harrod and Kalecki; Kriesler and Nevile—21. The mathematical formulation of Harrod's growth model; Nevile—22. The stability of warranted growth; Nevile—23. A reply to Dr. Inada; Nevile—24. Expectations, lags and particular parameter values in Harrod's dynamics; Nevile—25. Accumulation and structural disequilibrium; Halevi.

1. Economic history. 2. Keynesian economics. I. Halevi, Joseph, editor. II. Harcourt, G. C. (Geoffrey Colin), 1931—editor. III. Kriesler, Peter, editor. IV. Nevile, J. W. (John Warwick), editor  
HC21.P667 2015

330.15'6—dc23

2015030007

Typeset by MPS Limited, Chennai, India.

# Contents

<i>List of Figures and Tables</i>	vii
<i>Preface</i>	viii
<i>Acknowledgements</i>	x
<i>About the Authors</i>	xii
Introduction	1
<b>Part I Keynes</b>	
1 The Enduring Importance of <i>The General Theory</i> <i>G. C. Harcourt and Peter Kriesler</i>	15
2 <i>The General Theory</i> after Sixty Years: History or Economic Laws? <i>Joseph Halevi</i>	34
3 Notes on Keynes' Aggregate Supply Curve <i>J. W. Nevile</i>	44
4 What Keynes Would Have Thought of the Development of IS-LM <i>J. W. Nevile</i>	50
5 <i>IS-LM</i> and Macroeconomics after Keynes <i>Peter Kriesler and J. W. Nevile</i>	69
6 Keynes, Kalecki and <i>The General Theory</i> <i>Peter Kriesler</i>	81
<b>Part II Kalecki</b>	
7 Michał Kalecki on Capitalism <i>Peter Kriesler and Bruce McFarlane</i>	107
8 Kalecki and Modern Capitalism <i>Joseph Halevi</i>	133
9 Kalecki's Pricing Theory Revisited <i>Peter Kriesler</i>	141
10 Microfoundations: A Kaleckian Perspective <i>Peter Kriesler</i>	161

11	Kalecki, Classical Economics and the Surplus Approach <i>Joseph Halevi and Peter Kriesler</i>	177
12	Kalecki's Conception of the Economic Cycle and State Intervention <i>Joseph Halevi</i>	191
13	Was Kalecki an "Imperfectionist"? Davidson on Kalecki <i>Peter Kriesler</i>	209
14	Answers for Steedman <i>Peter Kriesler</i>	216
15	Reply to Steedman <i>Peter Kriesler</i>	224
16	On the Limitations of Fiscal Policy: A Radical Kaleckian View <i>Joseph Halevi and Peter Kriesler</i>	226
17	The Influence of Michał Kalecki on Joan Robinson's Approach to Economics <i>G. C. Harcourt and Peter Kriesler</i>	239
18	Michał Kalecki and Rosa Luxemburg on Marx's Schemes of Reproduction: Two Incisive Interpreters of Capitalism <i>G. C. Harcourt and Peter Kriesler</i>	254
19	The Contemporary Significance of Baran and Sweezy's Notion of Monopolistic Capitalism <i>Joseph Halevi</i>	265
20	Dynamic Keynesian Economics: Cycling Forward with Harrod and Kalecki <i>Peter Kriesler and J. W. Nevile</i>	287
<b>Part III Harrod</b>		
21	The Mathematical Formulation of Harrod's Growth Model <i>J. W. Nevile</i>	305
22	The Stability of Warranted Growth <i>J. W. Nevile</i>	309
23	A Reply to Dr. Inada <i>J. W. Nevile</i>	319
24	Expectations, Lags and Particular Parameter Values in Harrod's Dynamics <i>J. W. Nevile</i>	321
25	Accumulation and Structural Disequilibrium <i>Joseph Halevi</i>	331
	<i>Index</i>	352

# List of Figures and Tables

## Figures

3.1	Short run cost curves	46
6.1	Relation between monetary and real sectors in neoclassical economics	84
6.2	Relation between monetary and real sectors for Keynes	88
6.3	Relation between monetary and real sectors for Kalecki	94
9.1	Cost curves of an enterprise in an imperfectly competitive market	143

## Tables

6.1	Comparison of economic systems	97
10.1	National Income	167



# Preface

Geoff Harcourt intended to put together one more volume of selected essays in order to reach double figures. But then Peter Kriesler reminded him that since he joined the School of Economics at the University of New South Wales in August 2010 as a Visiting Professorial Fellow, they, sometimes with John Nevile, had published several joint papers. Moreover, Peter and John, and Peter and Joseph Halevi, had also been publishing joint papers for many years. All their works, whether as sole author or jointly, had important common themes. The underlying theoretical framework was essentially post-Keynesian.<sup>1</sup> They all stressed the importance of the underlying institutional framework, of the economy as an historical process and, therefore, of path determinacy. Money and finance were an integral part of the economy, with monetary variables affecting real variables and vice versa at all stages of analysis. In addition, all the works saw the ultimate goal of economics as being a tool to suggest policy – even the theoretical works were motivated by the desire to make the world a better place, with better being defined by an overriding concern with social justice.

So arose the proposal we made to Taiba Batool that we put together four volumes of selected essays by “Post-Keynesian Essays from Down Under,” subtitled “Theory and Policy in an Historical Context.” She enthusiastically accepted the offer, ably assisted by Ania Wronski. We therefore set about putting the selections together. When Taiba left Palgrave Macmillan for pastures new, she passed the project onto Laura Pacey and Rachel Sangster who, just as enthusiastically, oversaw the bringing together and publication of the four volumes. Laura, in particular, has been extremely helpful and patient in our journey from idea to manuscript.

Our grateful thanks go to Joan Harcourt for forgiving Geoff for breaking the promise never again to undertake a major research project, witnessing yet again her love and support of over 60 years; to Teresa, Peter’s wife, for her continual love and support; and to Fay, John’s wife, who, in the absence of a secretary, typed much of his introductions to chapters (and commented that the names had not changed much since the last time she did this when, as a young wife, she typed drafts of John’s PhD thesis).

We would also like to thank Roni Demirbag for his help in getting Joseph’s papers in order, and Jason Antony for his gracious and good-natured multi-dimensional expert help in assembling the volumes.

## **Note**

1. For an overview of what we consider to be post-Keynesian economics see Harcourt, G. C. and Kriesler, P. 2015 "Post-Keynesian Theory and Policy for Modern Capitalism," *Journal of Australian Political Economy*, No. 75, Winter 2015, 27–41.

# Acknowledgements

The authors and publishers wish to acknowledge with thanks the following for either previously publishing their articles, or granting permission to reproduce copyright material:

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- Palgrave Macmillan for publishing "Michał Kalecki and Rosa Luxemburg on Marx's schemes of reproduction: two incisive interpreters of capitalism" in R. Bellofiore, E. Karwowska and J. Toporowski (eds) *The Legacy of Rosa Luxemburg, Oskar Lange and Michał Kalecki*, Volume 1, 2014, pp. 9–18.
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- The Economic Journal* for publishing "The mathematical formulation of Harrod's growth model," *The Economic Journal*, Vol. 72, No. 286, 1962, pp. 367–370.
- John Wiley and Sons for permission to reprint "The stability of warranted growth," *Economic Record*, Vol. 36, No. 76, 1960, pp. 479–490.
- The Economic Journal* for publishing "The mathematical formulation of Harrod's growth model: A reply to Dr. Inada," *The Economic Journal*, Vol. 75, No. 299, 1965, pp. 624–625.
- The History of Economic Thought Society of Australia for permission to reprint "Expectations, lags and particular parameter values in Harrod's dynamics," *History of Economics Review*, Vol. 37, Winter, 2003, pp. 100–108.
- Palgrave Macmillan for publishing "Accumulation and structural disequilibrium," *Beyond the Steady State: A Revival of Growth Theory*, 1992, pp. 264–288.

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**G. C. Harcourt** is a graduate of the Universities of Melbourne and Cambridge. He has worked mainly at Adelaide (1958 to 1985) and Cambridge (1964 to 1966; 1972 to 1973; 1980; 1982 to 2010). He is now Visiting Professorial Fellow at UNSW Australia. He is Emeritus Reader in the History of Economic Theory at Cambridge University; Emeritus Fellow of Jesus College at Cambridge; and Professor Emeritus at the University of Adelaide. He has authored or edited 29 books and over 380 articles, notes, chapters in books and reviews. His books include *Some Cambridge Controversies in the Theory of Capital* (1972), *The Structure of Post-Keynesian Economics* (2006), (with Prue Kerr) *Joan Robinson* (2009) and (jointly edited with Peter Kriesler) *The Oxford Handbook of Post-Keynesian Economics*, 2 vols (2013).

**Peter Kriesler** currently teaches in the School of Economics at the University of New South Wales. He organises the Annual Australian Society of Heterodox Economists Conference, which is now in its fourteenth year. Peter's main publications are in the areas of history of economic thought, heterodox economics, the Australian economy, labour economics, and economic perspectives on human rights.

**J. W. Neville** is Emeritus Professor at the University of New South Wales in Sydney, Australia. He has published extensively on fiscal policy, macroeconomic policy in general, economics and ethics, and the history of economic thought. He has served on a number of statutory authorities and government enquiries. He was the Recipient of the Economic Society of Australia Distinguished Fellow Award for the year 2000.

# Introduction

*Joseph Halevi*

The papers included in this volume reflect the central role that, in my research and in that jointly done with Peter Kriesler, unflinching friend and colleague for more than 35 years, is ascribed to the concepts and theories of monopolistic capitalism. I arrived at economics through my political interests and engagements, which began in the very early 1960s in Israel and continued in Italy where I moved to live. The contact with academic economics occurred exactly through the ideas of monopolistic capitalism.

My adult intellectual history began in 1968 in Rome. I was just over 21 years of age and considered myself a Socialist and a Marxist. In 1964 I became a member of the Italian Communist Party and had by then read as many political and philosophical writings of Marx and Engels which I could decipher thanks to the excellent education in philosophy which I received at the Italian Liceo (like the Lycée in France) before enrolling at the University of Rome. In 1968 I was beginning to study *Das Kapital* prompted by the lectures of the philosopher Lucio Colletti. However, what attracted my attention most was Lenin's characterisation of 19th and early 20th century capitalism in terms of two phases: the competitive one, in a classical sense, and the monopolistic imperialist one. The first belonged to the realm of Marx's analysis while the second was that covered by Hilferding, Lenin and, as I would later realise, Rosa Luxemburg. But it became clear that the Hilferding–Lenin view about cartels and imperialism was not taking me into the phases of capitalist development of the post-1945 decades. Living in Italy constituted a great stimulus, not least because of the unique cultural richness of the country as testified to by the theatre and movie directors (such as Fellini, De Sica, Visconti, to name a few) and writers (Carlo Levi, Pasolini and Calvino) it produced at the time.

Such richness itself resulted from a critical look at the fast transition of the country from an essentially agrarian society with an industrial North, to a developed economy which, however, retained, and even “successfully”

readapted to the new situation, crucial contradictions of its underdeveloped recent past. As this was happening within the context of the European Common Market, entailing a strong push towards European integration through a Kaldorian process of export-led growth and of cumulative causation, new conceptual instruments were required, indeed like the Kaldorian one. By the end of 1968 these questions became for me of paramount importance after the Communist Party suggested that I take a position at the Rome Trades Hall of the Italian General Confederation of Labour (CGIL) in order to set up a research office. In that newly formed office I was working and eating with a colleague, Adolfo Pepe, who was to become the foremost historian of the labour movement in Italy. Adolfo, who today is the Director of the Di Vittorio Foundation of the CGIL and Professor Emeritus of History at the University of Teramo, has the unique gift of combining elegantly and smoothly historical analysis with economic analysis, through the daily reading of the economic editorials of the *Corriere della Sera*, the paper of Italian capital. We ended up spending hours in commenting on them, and this is the reason our conversations would often drift towards a trattoria (restaurant) in Trastevere. One of Adolfo Pepe's points that stuck in my head was that capitalist development and accumulation must be viewed in sectoral terms. One should proceed, he argued, by identifying the sectors leading the process of accumulation and study how they connect with the rest of the industrial structure.

That view I most definitely retained. Yet in the course of my research over the decades I discovered that the sectoral approach is one of the most difficult subjects to study. To begin with, there is the sectoral embeddedness of dynamic oligopolistic firms. Then there is the related impact upon investment of the endemic unused capacity of oligopolistic firms. Since investment has a sectoral connotation, generally outside the sector embedding the oligopolistic firm, one must study the sectoral implications of the impact of unused capacity upon investment. This leads us straight to the macroeconomic implications of sectoral dynamics. Out of the historically exceptional melange of massive social movements, such as France's May 1968 and Italy's labour revival of the hot Autumn of 1969, and the aforementioned cultural richness of the country, came the set of threads which enabled me to formulate a framework strong enough to proceed along the lines sketched out above.

Of those threads by far the most important was represented by the work of Paolo Sylos Labini – who was also my thesis supervisor along with the very pro-Kaleckian public finance Professor Sergio Steve. Steve and Sylos Labini took on board my research preoccupations and suggested that I study Kalecki. Things started to fall into place. Kalecki emerged as the theorist of a Karl Marx–Rosa Luxemburg theory of effective demand where the sectoral division of the economy between investment and consumption goods is used to highlight the fallacy of composition under mark-up pricing. His

approach implied that (a) a fall in real wages would increase, not reduce, unemployment, and (b) while a rise in real wages would increase employment, within the capacity range it would also boost profits in the consumption goods industries.

More than two decades later in a paper jointly written with Peter Kriesler, Kalecki's approach was developed further. As shown in Chapter 11 of this volume, we attempted to argue that in a demand-determined oligopolistic economy an increase in wages may actually increase the rate of profits on account of the positive impact of higher capacity utilisation on the rate of profits. We also connected our observations to the sectoral tendencies of the economy. We observe, contrary to the position held by the neo-Ricardians of the Garegnani variety, that an adjustment to a long-run desired normal capacity utilisation is unlikely to exist. The capitalist economy is defined by the short-period interplay between effective demand and capacity utilisation. This conclusion is even independent of oligopolistic relations. One may assume any type of prices except that of building a well-behaved set of properties into their mechanism. Capitalist firms, as decentralised units, have simply no capacity to foresee both the set of prices ensuring a uniform rate of profits and the conditions required for normal utilisation rates. The inability of decentralised firms to successfully achieve economy-wide normal outcomes emerges from the problematical path-determined nature of the traverse from one economic state to the next. In no way are those who maintain that normal states can be attained able to show the actual trajectory of the transition.

Michał Kalecki, having himself developed the theory of effective demand from the Marxian perspective of realisation, was also critical of the view that Keynesian policies could be a miraculous cure all for the problem of unemployment and for what he viewed as the main source of capitalist crises. Investment, he argued, when it is produced, increases demand through the orders for new investment goods. Yet when investment is installed as a piece of new machinery, it starts producing, adding to existing capacity. Unless the economy happens to be in a steady state, this dual role of investment is bound to create a clash between new equipment and the existing capital stock. These issues are treated in Chapters 8 and 12.

Chapter 8 is a 1992 review paper of the first two volumes of the *Collected Works of Michał Kalecki* published by Oxford University Press in 1990 and 1991 respectively. The essay credits Kalecki for having been the first theorist to introduce unused capacity explicitly in the analysis of capitalist dynamics. Then it is pointed out that Kalecki's theoretical constructions have always been historically grounded: in the 1930s the economy is seen as deprived of any external impulse inevitably drifting towards war. After 1945 the external impulse is represented by armament expenditure and the related public civilian expenditure as well as by actual localised wars. This expenditure had a positive impact on employment and wages, which grew with productivity.



However, this very process highlights the contradictory nature of capitalism which relies on a rather dangerous external stimulus. Just the same even a toxic – nuclear missiles cum napalm laden – stimulus may not guarantee a satisfactory rate of capacity utilisation. Indeed in an oligopolistic economy there are likely to be combinations related to the size of the stock of capital and to the degree of monopoly such that the system may find itself saddled with chronic unused capacity. Thus if military expenditure cannot guarantee Keynesian stability, what will?

Chapter 12, published in 1975, explores Kalecki's thinking in relation to the factors that make investment clash with existing equipment, the factors that limit investment through increasing risk, and the conditions required to maintain full employment. Investment is characterised by two lags represented by investment decisions, investment orders and their final delivery. This creates a structural cycle, as already perceived by Marx when he wrote about cycles caused by replacement requirements. In Kalecki those structural lags also define the difficulty in dealing with the clash between investment and the capital stock without resorting to some form of investment planning. The essay then discusses Kalecki's views about government expenditure and about whether it is possible to guarantee full employment by stimulating private investment.

The latter are contributions that Kalecki wrote toward the end of the Second World War. It emerges that the best form of government expenditure is one without deficits based on a capital tax. The government by spending all the tax proceeds would generate a full employment multiplier similar to the Balanced Budget Theorem developed by Haavelmo several years later. Thus the multiplier is found already in Kalecki. Yet such a policy would entail a socialisation of capital's income and of investment that would come close to the abolition of capitalist relations altogether. Hence one should never confuse what is economically feasible with what is attainable in terms of class relations; similarly, for policies aimed at stimulating private investment for full employment purposes. There are two weaknesses in relying on such a policy. First, investment is not as interest-elastic as it is usually assumed. "Therefore" reducing interest rates may not, at some point, expand investment. Secondly, investment must be sectorally directed and cannot be treated only as an aggregate magnitude. This applies also to public expenditure. Hence while it is possible to attain full employment by standard Keynesian measures in the short run, maintaining full employment requires non-capitalistic elements in investment planning. These lines are developed in a more analytical and contemporary setting in Chapter 16, written with Peter Kriesler.

Chapter 19 titled "The Contemporary Significance of Baran and Sweezy's Notion of Monopolistic Capitalism" was published in 1985. It brings together the ideas that I learned from Paolo Sylos Labini's book *Oligopoly and Technical Progress* and subsequent works, from the study of Kalecki and from

my reading of Baran and Sweezy's classic *Monopoly Capital* (1970). Having chosen to study with Sylos Labini and Sergio Steve I was fortunate not to have to read any of the standard textbooks. Our macroeconomics text in Rome was Harcourt-Karmel-Wallace's *Economic Activity*, while our microeconomics text was based on Sylos Labini's mimeographed lectures, later printed as a text. Instead I did read in one go Baran–Sweezy's book, Sylos's *Oligopoly* and Kalecki's 1954 *Theory of Economic Dynamics*. In 1975 fate determined that I migrate from Rome to New York City where I lived for nearly four years doing random odd teaching jobs at the New School for Social Research and at Rutgers University. In September 1978 I moved to greater stability at the University of Sydney where the incredibly strong friendship with Peter Kriesler began within one week of my arrival.

The first compensation (there is a second one which will be unveiled shortly) for the odd New York jobs, was the establishment of what would become a 30-year-long friendship and cooperation with Harry Magdoff and Paul Sweezy at the *Monthly Review*. It continued even after my emigration to Australia since I made sure I visited them in New York every year. And indeed after Sweezy and Magdoff died (2004 and 2006 respectively) I stopped going to the USA altogether. Chapter 11 reflects the nature of that cooperation. In particular, it attempts to show the links between the Baran–Sweezy view of monopoly capital and the theoretical structures of Kalecki and Sylos Labini. The essay, however, goes further because it underscores the importance of the Baran–Sweezy approach in the subsequent development of the *Monthly Review* analysis undertaken in the writings of Magdoff and Sweezy throughout the 1970s and part of the 1980s. In a nutshell, the essay credits the *Monthly Review* with having grasped already in the early 1980s the financialisation of present day capitalist economies. It also points out that it is consistent with the monopolistic nature of capitalism.

The second compensation for my precarious job in New York existence was meeting Adolph Lowe at the New School for Social Research. An émigré from Germany, he was already in his eighties and absolutely sharp. In my opinion Adolph Lowe is the intellectual who best understood the technical and physical importance of Marx's schemes of reproduction for the comprehension of modern day-to-day issues related to capital formation, as well as of liquidation. It is through my conversations with Adolph Lowe, and by reading many times his difficult path-breaking text, *The Path of Economic Growth* published in 1976 by Cambridge University Press, that things finally fell into place: namely, that the economy is made up of intertwined sectors hierarchically ordered. They are constituted of machines and of engineering processes which cannot be malleable, so that changes require discontinuous processes all the time. Disequilibria do not depend upon market imperfections and the like. They are part and parcel of the production process. Effective demand, traverse processes and oligopolistic formations

play themselves out in this tightly structural framework. Chapter 25 looks at growth and accumulation theories, beginning with Marx and going through Harrod, via the prism of Lowe's structural framework. It was published in 1992 but was written in 1987–1988 at the end of a two-year stay at the University of Connecticut.

I close by going back to the beginning of my journey. I most definitely would not have been able to undertake it had I not studied – both beforehand and during the trip itself – alongside Paolo Sylos Labini's works, the absolutely pristine contributions of Luigi Lodovico Pasinetti in relation to capital theory, to Leontief–Sraffa systems and to growth theories. With a selection of their books always in my bag or suitcase, I possessed a high powered compass which invariably accompanied me and made me see why the neoclassical path, on which I never walked, was not to be followed.

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### Geoff Harcourt

I have three essays in this volume, all authored jointly with Peter Kriesler. "The Enduring Importance of *The General Theory*," published in *ROPE* in 2011, joins in the celebration of 75 years on from the publication of Keynes's *magnum opus*. The really important original contributions in it come from Peter when he applies Keynes-type reasoning to issues arising in open economies in the modern era.

The other two joint essays relate to the writings of four of our mentors: Joan Robinson, Michał Kalecki, Karl Marx and Rosa Luxemburg. The first essay, "The Influence of Michał Kalecki on Joan Robinson's Approach to Economics," documents the decisive influence of Kalecki on the development of Joan Robinson's approach to economic theorising. It was originally published in Philip Arestis's edited volume in honour of Malcolm Sawyer, *Microeconomics, Macroeconomics and Economic Policy. Essays in Honour of Malcolm Sawyer* (2011). Malcolm has applied arguments based on his deep understanding of Kalecki's approach to many vital issues over the last decades.

The other essay, "Michał Kalecki and Rosa Luxemburg on Marx's Schemes of Reproduction: Two Incisive Interpretators of Capitalism," relates to Kalecki's and Luxemburg's take on Marx's schemes of reproduction in their own writings. It appeared originally in a volume edited by Riccardo Bellofiore, Ewa Krowowska and Jan Toporowski on the legacy of Rosa Luxemburg, Oscar Lange and Michał Kalecki published by Palgrave Macmillan in 2013. It shows how Kalecki (and Joan Robinson) much admired Luxemburg's contributions even though they criticised some of the details of her use of Marx's schemes of reproduction.

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*Peter Kriesler*

I have been very lucky, throughout my academic career, commencing from the time of my undergraduate study, to be surrounded by supportive and encouraging colleagues, many of whom have subsequently become friends and collaborators. During my undergraduate degree I developed a strong interest in the economics of Michał Kalecki, and analysis and developments of his work became the subjects of my Master's and PhD theses. While at the University of Sydney, I had many interesting discussions and debates with Joseph Halevi on a wide range of areas. Underlying most of these were Marxian and Kaleckian themes. When I returned to Sydney, after my studies in Cambridge, our discussions swiftly recommenced on these themes. We were both confused by the somewhat dismissive attitude of Sraffian (or, as they are sometimes called, neo-Ricardian) economists towards Kalecki, and decided to write an evaluation from a Kaleckian viewpoint of their research project, which was my first collaborative paper (Chapter 11). As Joseph has already discussed the paper, I will not comment except to note that, despite the deep nature of our critique, there has not been a direct response to it, or the issues it raises.

Geoff Harcourt (like Joseph Halevi) was an examiner of my Master's thesis on "Kalecki's Microanalysis." I was already in Cambridge when Geoff returned in 1982 and was fortunate that he agreed to be my PhD supervisor. Two of the chapters in this volume (Chapters 9 and 10) are updated chapters from my final thesis, and so the debt to Geoff should be obvious. To my great pleasure, Geoff joined me as a colleague at the University of New South Wales in 2010, and we have collaborated on numerous papers, three of which are reproduced in this volume (Chapters 1, 17 and 18). One of the first is our paper celebrating the 75th anniversary of the publication of *the General Theory*, which was the start of a very fruitful collaborative team.

There are also a number of papers co-authored with John Nevile, with whom I have worked closely since I started at UNSW. It is an honour to call John a colleague and friend, and, as with all my collaborators, I have learned much from him. Our original collaborations were in the area of human rights and employment but they quickly broadened to include economic theory and our shared interests in the history of economics – particularly in the works of Keynes, Harrod and Kalecki – the results of which are reproduced in this volume. Chapter 5 represents our tribute to Victoria Chick by extending her critique of IS-LM. In this paper there are a number of themes that underlie our collaborative work on Keynes, in particular, Keynes's use of the particular equilibrium method to allow the drawing of causal inferences. Associated with this is a rejection of the simultaneous determination approach associated particularly with general equilibrium analysis. In addition, we argue that the role of money and finance is problematic within the IS-LM analysis.

Our other joint paper in this volume, Chapter 20, is the result of our respective interests in the dynamic analysis of Harrod and Kalecki. The paper tries to highlight the important contributions of these two seminal authors which were left out of the more conventional analysis of trade cycles, and were important in making Keynes's short-period analysis dynamic, namely, the importance of money and finance, of imperfect competition as well as the dual role of investment as both a component of effective demand and also a determinant of the level of capacity.

I was asked to write a chapter for A '*Second Edition*' of *The General Theory* (Harcourt and Riach 1997) on how Kalecki's influence may lead to changes in the analysis of *The General Theory*, which is of particular importance given that Keynes and Kalecki co-discovered the principle of effective demand from very different starting points. Chapter 6 was the result. It compares and contrasts their approaches to the analysis of effective demand, highlighting the strengths and weaknesses of each, before proposing a possible way of combining the best of both. Of particular interest is the role of microfoundations in Kalecki's formulation which have an important role as compared to Keynes where they are neglected. The development of Kalecki's pricing theory plays a particularly critical role and is linked to his analysis of effective demand.

Chapter 9 examines the way in which Kalecki's pricing theory developed over his life, showing the detours he took before the final version of the theory emerged. In Chapter 10, Kalecki's microfoundations, and, in particular the way in which he related his microanalysis of pricing and distribution to his macroanalysis of the determination of effective demand and employment, are considered. Kalecki's approach is different to that of most other economists in that neither dominates, with some important economic relations determined at the micro level, while others are determined at the macro level, with the interrelation giving further insights not obtainable from either one in isolation.

Chapter 7 is a review paper by myself and Bruce MacFarlane of the first two volumes of Kalecki's *Collected Works*, which emphasises Kalecki's many original contributions to economics. However, it is his vision of the laws of motion of the economy and his overwhelming concern with social justice and with the alleviation of poverty that are stressed as being of particular importance. Within this, Kalecki's scepticism that the state would be able to solve these problems, including implementing full employment policies, was documented in his famous 1943 paper "Political Aspects of Full Employment." He concluded that the institutions of capitalism were not compatible with the maintenance of full employment without crucial reform, which were unlikely. This is a theme which Joseph Halevi and I revisited in Chapter 16, when we considered the limits of fiscal policy in contemporary capitalism.

The development of Kalecki's theory of pricing was the theme of my Master's thesis at the University of Sydney, supervised by Peter Groenewegen. Kalecki's analysis of pricing represented a significant contribution to

heterodox economic analysis. He argued that, as opposed to the supply and demand analysis of mainstream economics, prices in most capitalist economies were determined in oligopolistic markets as a mark-up on costs, with the mark-up determined by, what he called “the degree of monopoly.” The thesis (and subsequent book) and Chapter 9 which is a summary of it, all traced the way in which Kalecki’s analysis of these issues changed and developed, arguing that there were some major detours so that his development of the ideas was not continuous.

Chapters 13–15 deal with responses to criticisms of Kalecki’s analysis. In particular, he has been criticised for not utilising a full input/output general equilibrium system in his analysis of pricing, and for being an “imperfectionist” in respect to his analysis of unemployment. In these papers, I argue that while first of these is correct, it is actually a strength of Kalecki’s work, while the second is wrong. Kalecki, like Keynes, showed that capitalist economies would not necessarily generate full employment, and that the level of employment was not determined by the wage rate, but, rather, by the level of effective demand. They demonstrated that there was no market mechanism that could guarantee full employment, and that unemployment, far from being the result of a malfunction in the market mechanism, resulted from the way that markets worked. As has been discussed, Kalecki tied his analysis of effective demand to his microanalysis, which was based on a theory of pricing under oligopolistic conditions. Although market imperfections are not important for his analysis of the principle of effective demand and for the related demonstration that markets could not guarantee full employment, he has often been accused of being an imperfectionist in the sense that unemployment is a result of imperfections in the system – particularly imperfect competition. In Chapter 13 I respond to Paul Davidson’s version of this criticism, showing that it is based on a misunderstanding of Kalecki.

I was asked by the editor of the *Review of Political Economy* to comment on a paper by Ian Steedman, “Questions for Kaleckians.” In this paper, Steedman criticised Kalecki and Kaleckian economists for not utilising the simultaneous determination approach to pricing used by general equilibrium and neo-Ricardian economists. As the papers in this volume by John Nevile and myself (Chapters 5 and 20) make clear, such an approach was an anathema to Keynes and Kalecki, who were more concerned with mutual determination and used an iterative approach where causation matters. Kalecki’s approach is the most suitable for understanding the laws of motion of capitalist economies.

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*John Nevile*

When I started to write the introductory notes for the publications I had chosen much earlier to be included in the section on Keynes I was taken

aback to see that there were only two sole authored works plus a chapter jointly written with Peter Kriesler. Why was I so modest? After a little reflection, I realised that when it comes to Keynes, the published work of which I am most proud was inspired by Keynes, rather than written about him.

The two single-authored publications I did include in this volume have a common characteristic (Chapters 3 and 4). They both reflect things Keynes learned from Marshall. The first is a short piece written to counter the view, which was widespread in the 1990s, that equilibrium at a position of less than full employment is not compatible with the assumption of many small firms, each able to sell as much as it wishes at the going price. The second is a carefully argued exposition of the growing contrast in the second half of the 20th century between Marshall's particular equilibrium with its "*ceteris paribus* pound" and Walrasian equilibrium with its exogenous variables. There are other significant differences between the Walrasian approach and that Keynes inherited from Marshall, but this is the most fundamental one and is crucial for any policy applications of theory.

All my publications with a significant material about Kalecki were joint publications with Peter Kriesler and most of what I know about Kalecki I learnt from Peter so I left it to him to write the relevant introductory material.

In contrast to Kalecki, I have published more on Harrod than on any other economist. Chapter 22 was a chapter from my thesis though the mathematical model which was in the original has been omitted in this volume as it is not as elegant as that in Chapter 21. Chapter 21 also contained ideas implicit or explicit in my thesis. I had sent these two papers to Harrod after Chapter 22 had been published in the *Economic Record* and Chapter 21 accepted for publication in the *Economic Journal*. Chapter 24 can be read as a commentary on Chapters 21 and 22 and the attached letter was explicitly Harrod's response to these two chapters. Chapter 23 discusses a different but significant issue, that is, what happens when the initial conditions are not on the warranted rate of growth. It turns out that there are various different possibilities but the boundary lines between them are all curves. There is no set (or region) in which various values can exist that all lead to the same result.

That being said, it should be noted that Harrod disliked the use of the term "knife-edge," and rightly so since it implied a degree of instability far removed from anything in the real world. Harrod thought his growth theory was not just abstract theory but of direct relevance to policy. Hence Harrod insisted that any shock had to last a certain length of time before deviations from his warranted rate of growth occurred. In the 1939 *Economic Journal* "An Essay" (p. 26), Harrod suggests that a deviation from the equilibrium rate of growth could have to last as long as six months before a divergence from that equilibrium rate of growth occurred.

However, the most important overarching proposition in Harrod's growth theory is that cycles and growth are organically interconnected and cannot be analysed separately. While Harrod's fundamental growth theorems were very general, he insisted that any complete analysis required consideration of growth and the cycle together: "the value of warranted rate depends on the phase of the trade cycle and the level of activity" (Harrod, 1939, p. 30).

The policy implications of this are important. Harrod makes a very strong case that responses to cyclical fluctuations and trends cannot be divided into two separate spheres. They must be considered as a joint response by intertwined parts of the economy. Unfortunately, the dominant school of thought among both academic economists and policy advisors takes precisely the opposite view, with the forces determining the cycle having no impact on the longer run rate of growth. This view helped to cause the global financial crisis and will hinder, and quite likely prevent, a satisfactory recovery from it.

## Reference

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**Part I**  
**Keynes**

# 1

## The Enduring Importance of *The General Theory*

G. C. Harcourt and Peter Kriesler

*This paper examines some features of The General Theory that remain relevant 75 years after its publication. Keynes showed that even in a competitive economy with perfectly flexible prices, wages and interest rates, market prices could not guarantee full employment and that the achievement of full employment would only be a fluke. In other words, he showed that there was no natural mechanism to drive the economy to full employment, and that the level of employment was determined by effective demand rather than by the wage rate. He demonstrated this by using a method that stressed the relationship between cause and effect in determining key variables and relations in the economy. Keynes demonstrated that monetary variables affected real variables, and real variables affected monetary ones, in both the short run and long run. This can be contrasted with mainstream theory, where the long-run neutrality of money remains a key result. The paper proposes a rehabilitation of Keynes's analysis of the supply and demand for money—away from its original role in explaining domestic monetary influences and towards providing an analysis of supply and demand for international money.*

### 1.1 Introduction

The question of what Keynes's *General Theory* has to offer us 75 years after it was first published is not easy to answer. In part this reflects the fact that the book changed the landscape of economic thought and left a profound legacy on that branch of economics that has become known as macroeconomics.<sup>1</sup> Nevertheless, fundamental aspects of *The General Theory* have been neglected by the mainstream and still have much to offer. In essence, what Joan Robinson (1964) dubbed 'pre-Keynesian theory' after Keynes, has dominated economics during the last 40 years, even though that theory is both

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Revised from *Review of Political Economy*, 23(4): 503–519, 2011, 'The Enduring Importance of *The General Theory*', by Harcourt, G. C. and Kriesler, P. With kind permission from Taylor and Francis Online <http://www.tandfonline.com/doi/full/10.1080/09538259.2011.611616>. All rights reserved.

wrong-headed and inapplicable. Much that has been labelled 'Keynesian economics' really represents attempts to derive Keynesian results within a neo-classical framework. However, this misses the essential message of Keynes.

In particular, a number of Keynes's major contributions in *The General Theory* remain of great importance and have been ignored by mainstream macroeconomics. Keynes showed that, even in a competitive economy with perfectly flexible prices, wages and interest rates, market prices not only could not guarantee full employment but also that the achievement of full employment would only be a fluke. In other words, he showed that there was no natural mechanism that would drive the economy to full employment. This is a proposition that, 75 years later, remains foreign to mainstream economic theory, which tells us that there is no involuntary unemployment or, if there is, it is the result of some market imperfection. In other words, we still have much to learn from Keynes about the nature of unemployment in capitalist economies.

In addition, and contrary to the conclusions of pre-Keynesian theory, Keynes demonstrated that monetary variables affected real variables, and real variables affected monetary ones, in both the short run and the long run. This can be contrasted with mainstream theory, where the long-run neutrality of money remains a key result.

This paper argues that both of these conclusions are as relevant today as they were when Keynes originally proposed them. However, owing to major changes in the economic environment and economic institutions, the way Keynes arrived at them needs to be modified to incorporate these transformations. In particular, the paper proposes a rehabilitation of Keynes's analysis of money supply and demand, one that moves away from its original role of explaining domestic monetary influences and towards providing an analysis of supply and demand for international money.

While our emphasis in this paper is on Keynes's contributions and approach, and on the most appropriate and promising ways forward, it is important to briefly review the pre-Keynesian orthodoxy to which Keynes was reacting.

## 1.2 Pre-Keynesian Theory

Keynes was brought up on Marshallian economics. Although Marshall only produced one volume of the at least three volumes he thought should make up a comprehensive principles of economics, he did leave in various places his views on money, finance and related matters, international trade and capital flows, as well as his unsatisfactory *Money, Credit and Commerce* (Marshall, 1923). From these sources, Keynes assimilated what he was to call 'the classical system'.

On this view, in a competitive environment there was a tendency for prices and quantities to adjust so that all markets cleared, including those for the services of all classes of labour and capital goods. This implied, at least in the long period, the existence of Say's Law. General gluts were

impossible, and so the theory of output and employment as a whole was no more than an adding-up exercise.

In the labour market, the wage rate was seen as the price equating the demand and supply for labour. As long as demand and supply schedules behaved in the conventional ways, a market-clearing wage would be established, so that there would be no involuntary unemployment at that wage. Unemployment could only be the result of an impediment to the market mechanism, which prevented the wage rate from adjusting to its equilibrium level.

As the labour market was seen as guaranteeing full employment, unless there were rigidities, only in the event of such rigidities was there a role for government. For most economists, the role of government was limited to trying to eliminate such imperfections.

Once the level of employment was determined in the labour market, this determined the level of output. The level of output was independent of saving and investment, which were determined in the market for loanable funds. In this market, saving represents the supply of loanable funds and investment its demand. The rate of interest is the price that equates saving and investment, exactly the same way any price equates supply and demand. Underlying this is the view that the rate of interest is the reward for postponing consumption.

As the economy is always at full employment, the market for loanable funds determines the division of output between consumption goods and investment goods. Causality runs from saving to investment, with changes in saving leading to changes in investment. Given savings, an attempt by the government to increase its expenditures will require that it borrow savings and thus crowds out private investment. The more the government takes, the less will be available for the private sector. It is for this reason that most neoclassical economists argue that governments have limited ability to influence the level of employment, output or investment. With full employment resulting from the workings of the labour market, and investment determined in the market for loanable funds, any attempt by the government to influence the course of economic activity must be at the expense of private investment.

Accumulation is seen as the transformation of delayed consumption today (i.e. saving) into more consumption tomorrow, a psychological choice at the margin by economic agents and by business people who transform consumption foregone today through investment in capital goods into greater consumption in the future. The flows of each are equalized when their respective rates of swapping at the margin (one subjective, the other technical) match each other *and* the nominal rate of interest. Irving Fisher became the principal expositor of this view, which is still the dominant account of the accumulation process by mainstream economics today. It lies behind the commonly held view that saving determines investment, especially at the level of the world economy; this is in sharp contrast to the Keynesian view that investment leads and saving follows.<sup>2</sup>

In terms of the role of money, there was a strict dichotomy between the real and the monetary sectors so that the formation of relative prices and quantities in firms, industries and the economy as a whole could be analysed without any analytical role for money (other than as a ticket) and finance. In mainstream theory, the long-run neutrality of money is a fundamental result. There are no long-run effects of monetary variables on real ones—although, in the short run, the veil of money may flutter and splutter. Employment, saving, investment, the rate of interest and relative prices were all determined within the real sector. The price level is seen as a monetary variable determined exclusively within the monetary sector by the quantity of money.

According to Pigou, money is a veil. It is a surface phenomenon, having no real influence except that it can hide the underlying real story. Economic agents see the economy through the veil of the monetary variables, which lie between the real variables and those agents. So the perception of the economy was as if there was a box in which real variables were determined (including the rate of interest). In another box the monetary variables determined the price level, with no connection between the boxes, at least in the long run (Kriesler, 1997). This was especially so for the analysis of long-period competitive prices and quantities, or what Richard Kahn ([1929] 1989, p. xxviii) called ‘the real business’ of Marshall’s *Principles*.

Short-term fluctuations around the full employment level were part of trade and credit cycle theory, with a key role played by monetary policy and the nominal rate of interest. Basically, the natural rate of interest ruled the roost and the nominal rate had to be consistent with it in order to avoid cumulative processes of inflation and deflation. (Wicksell was the pioneer here.)

Keynes’s early writings, *A Tract on Monetary Reform* (Keynes, 1923) and *A Treatise on Money* (Keynes, 1930), were within this tradition, although he made some modifications and extensions. The *Tract* emphasized the role of monetary policy in the short run to attack inflation and deflation, while leaving the long run to the dead; in the *Treatise* he developed, within a quantity theory framework, theories of sectoral as well as the overall price level. He also analysed the banana plantation parable, which cried out for the concept of the multiplier to rid the analysis of *ad hoc*ery and provide a reason why the cumulative downturns in prices, quantities and employment would end *endogenously* (Keynes, 1973, pp. 158–160). But Keynes was still betwixt and between, providing, as Joan Robinson (1933, p. 56) pointed out, ‘a new theory of the *long-period* analysis of output’ without realizing it.

### 1.3 Keynes

Keynes came to economics with a background in mathematics and philosophy. He always regarded economics as a moral science. The development of his own philosophical ideas constituted an integral part of the

way he thought economics should be done and of his own revolutionary contributions to economic theory. Three aspects to his approach stand out. First, he argued that for a subject like economics, a whole spectrum of languages applies, running all the way from intuition and poetry through lawyer-like arguments (weight) to formal logic and mathematics. All have roles to play, depending upon what issues, or what aspects of issues, are being analysed.

Secondly, he emphasized that the whole may be more than the sum of its parts, a vital ingredient of his leading insight in the analysis in *The General Theory* and some of his other writings on the processes at work in the economy as a whole. Much modern macroeconomics is done in terms of representative agent models, which by their nature preclude this insight and the implications of the fallacy of composition.

Thirdly, there is his stress, also to be found in Marshall, that sensible, and sometimes not so sensible, people have to make important decisions in environments of fundamental uncertainty and so must develop behaviour and act in ways not contained in the assumption of *homo economicus*. This implies that much economic theory, developed either by assuming away the presence of uncertainty or treating it as the equivalent of risk, is inapplicable or, if applied, seriously misleading.

#### **1.4 *The General Theory***

With publication of *The General Theory* in February 1936, Keynes's major responses to his critics in 1937 (Keynes, 1973, pp. 109–123), and his addition of the finance motive to his new system (Keynes, 1973, pp. 215–223), the key components of his revolution were brought together.

As the title of his work suggests, Keynes rejected the dichotomy between the real and the monetary, insisting that monetary matters be integrated in a general analysis right from the start. There are essential causal links between monetary and real variables, and Keynes believed in the necessity of integrating monetary and real analysis. In particular, he argued that the nominal rate of interest ruled the roost in both the short period and the long period, and that his version of the natural rate (the marginal efficiency of capital or, as it should have been, the marginal efficiency of investment) had to measure up to it rather than the other way around, as in the old system. The rate of interest, in turn, was the outcome of the interaction between the demand for and the supply of money. As such, it is the reward for parting with liquidity and essentially a monetary phenomena. It, in turn, influences investment, which, in turn affects nominal and real income. This will feed back into further changes in the rate of interest. Note the clearly spelt out causal relations, and the integration of monetary and real variables. Monetary variables affect real variables and real variables affect monetary ones.

As a result, Keynes argued that, instead of the neoclassical dichotomy between monetary and real analysis, the correct dichotomy was between micro and macro analysis:

The division of economics between the theory of value and distribution on the one hand and the theory of money on the other hand is, I think, a false division. The right dichotomy is, I suggest, between the theory of the individual industry or firm and of the rewards and the distribution between different uses of a given quantity of resources on the one hand, and the theory of output and employment as a whole on the other hand. . . . as soon as we pass to the problem of what determines output and employment as a whole, we require the complete theory of a monetary economy. (Keynes, [1936] 1973, p. 293)

In addition, Keynes rejected the loanable funds analysis where saving determined investment. Rather, investment led and saving had to follow, even at full employment. The components of aggregate demand resulting from the decisions of business people concerning production, accumulation and employment in the light of their expected sales for their products drove the system. In the absence of government intervention, and given the state of long-term expectations, the ultimate constraint on investment became the cost and availability of finance. James Meade and Keynes left succinct statements bringing this together. 'Keynes' intellectual revolution was to shift economists from thinking normally in terms of a model of reality in which a dog called *savings* wagged his tail labelled *investment* to thinking in terms of a model in which a dog called *investment* wagged his tail labelled *savings*' (Meade, 1975, p. 82; emphasis in original). 'The investment market can become congested through shortage of cash. It can never become congested through shortage of saving' (Keynes, 1973, p. 222).

Below we argue that Keynes's analysis of the demand for and supply of money determining the rate of interest needs to be modified to acknowledge the endogeneity of the money supply and, in particular, the setting of the rate of interest by central bank policy. However, his analysis provides an excellent explanation of international money and the factors that determine the value of the exchange rate. This is discussed in Section 7 below.

Keynes was also responsible for a shift in emphasis on the short period as worthy of study in its own right. This began with *A Tract*. It was then given credence by Richard Kahn for the firm and the industry in his 1929 dissertation for King's College, 'The economics of the short period'. Finally, it came into its own for the economy as a whole in *The General Theory* itself.<sup>3</sup> Disposable income becomes a dominant determinant of both consumption expenditure and saving. The multiplier, first worked out in Cambridge by Kahn and Meade using the apparatus of *A Treatise on Money*, is the means by which a change in desired investment is equalized with desired saving,

and aggregate demand and aggregate supply are equalized at the point of effective demand (Kahn, 1931). The periodic flow of saving is regarded as a residual, although the forms in which present saving and past savings are held result from conscious economic decision making.

Importantly, whereas for neoclassical economists it is the rate of interest that equates saving and investment, for Keynes it was changes in income, via the multiplier. This means that there is nothing pushing the economy to full employment levels of income. As a result, the major determinants of investment and consumption spending are such that there is no presumption that even on average they will be at levels that ensure the full employment of labour and normal capacity utilization of the existing stock of capital goods. Sustained levels of involuntary unemployment become probable, as does over-full employment, especially in war time. The mechanism ensuring full employment in orthodox theory, namely the wage rate, does not serve that role according to Keynes; and the analysis on which it is built is fundamentally flawed due to the fallacy of composition.

For the demand schedules for particular industries can only be constructed on some fixed assumption as to the nature of the demand and supply schedules of other industries and as to the amount of the aggregate effective demand. It is invalid, therefore, to transfer the argument to industry as a whole unless we also transfer our assumption that the aggregate effective demand is fixed. . . . For, whilst no one would wish to deny the proposition that a reduction in money-wages *accompanied by the same aggregate effective demand as before* will be associated with an increase in employment, the precise question at issue is whether the reduction in money-wages will or will not be accompanied by the same aggregate effective demand as before measured in money. . . . But if the classical theory is not allowed to extend by analogy its conclusions in respect of a particular industry to industry as a whole, it is wholly unable to answer the question what effect on employment a reduction in money-wages will have. For it has no method of analysis wherewith to tackle the problem. (Keynes, [1936] 1973, pp. 259–260; emphasis in original)

Money wages influence the price level, not the level of employment, which is 'uniquely correlated with the volume of effective demand' (Keynes, [1936] 1973, p. 260).

Because Say's Law was refuted by Keynes's arguments, the quantity theory no longer provided a theory of the general price level, even in the long period. Keynes himself replaced it in *The General Theory* by adapting Marshall's theory of short-period competitive pricing at the firm and industry level to the economy as a whole. The general price level now reflected the short-period aggregate marginal cost of producing overall national output. While Keynes put in provisos about the modifications that would be needed



if imperfect competition prevailed in goods and factor markets, in order to get his main point across, he did not stress this. For his particular purposes, market structures, and their impact on price formation, were of secondary importance in that they did not affect his main qualitative conclusions.<sup>4</sup>

In 1939, Keynes was happy to accept Dunlop's, Tarshis's and Kalecki's overthrow of the expected regularities that would be found if his theory of the general price level was dominant. He did not think it changed the essence of his argument, and it made it easier politically to advocate expansion by government expenditure and tax cuts in periods of recession because the impetus to inflation associated with higher marginal costs and therefore prices would not necessarily occur (Keynes, [1939] 1973, pp. 394–412). However, when, at the beginning of the Second World War, he extended his analysis to analyse full and overfull employment in his 1940 essay 'How to pay for the war' (reprinted in Keynes, 1972, pp. 367–439), his concept of an inflationary gap drew on his theory of overall pricing in *The General Theory*. Whether market structures are or are not crucial is still being debated (see, Marris, 1997; Shapiro, 1997). It is significant that in his review article of *The General Theory*, Kalecki (1936) did not believe that they were and illustrated why (also see Targetti & Kinda-Hass, 1982).

The post-war claims that Keynes had a fixed price system are certainly not supported by Keynes's own contributions; nor is the claim that his results depend upon assuming a given money wage.<sup>5</sup> Moreover, Keynes did not accept that stable and dependable long-run relationships were a feature of economies that could be relied on when making policy decisions, making the Phillips Curve foreign to his methodology and his system (also see Harcourt, 2000, 2001).

In Keynes's discussion of the determinants of investment expenditure, the impact of the demand for money and finance, the workings of stock exchanges, and the importance of analysing decision-making under uncertainty are brought together. This provides a sounder base on which to erect explanations of the recent financial crisis and its impact on the real economy than any of the approaches developed by mainstream economists over the past 40 years. The most incisive statement of this viewpoint is Lance Taylor's (2010) 'tract for our times', appropriately entitled *Maynard's Revenge* (see also Stiglitz, 2010).

Keynes never insisted on the particular detailed ways he put these strands all together, only that they all be considered and that his theory not be regarded as an alternative way of stating the loanable funds theory of the rate of interest. This was primarily because the loanable funds theory was dominated by the interplay of flows and largely ignored the role of stocks in the determination of the role of interest. It is, moreover, linked excessively to the forces of productivity and thrift that dominated Keynes's definition of classical theory and that he objected to.

Keynes's analysis and criticisms of the workings of the stock exchange are as fresh today as when he wrote Chapter 12 of *The General Theory*, probably his own favourite chapter. There he identified the stock exchange's role in 'enterprise'—the bringing together and gathering up of new saving, a flow, and the rearrangement of old savings (a stock), in directing funds towards the holding of financial assets, the prices of which were meant to reflect the expected profitability of newly established and long-established physical assets of firms, the shares and debentures of which were quoted on the stock exchange. Keynes pointed out that if speculation was only a bubble on the pool of enterprise, the stock exchange would be a socially valuable institution, doing the tasks described above tolerably well. But if the roles were reversed, so that speculation was dominant, the stock exchange then more resembled a casino and did a very poor job in fulfilling its traditional and proper role.

Speculators may do no harm as bubbles on a steady stream of enterprise. But the position is serious when enterprise becomes the bubble on a whirlpool of speculation. When the capital development of the country becomes a by-product of the activities of a casino, the job is likely to be ill-done. The measure of success attained by Wall Street, regarded as an institution of which the proper social purpose is to direct new investment into the most profitable channels in terms of future yield, cannot be claimed as one of the outstanding triumphs of *laissez-faire* capitalism. . . . not surprising, if the best brains of Wall Street have been . . . directed towards a different object. (Keynes, [1936] 1973, p. 159)

These considerations also apply to business people making decisions concerning accumulation in an uncertain environment. Chapter 11 of *The General Theory* had an unsatisfactory theory of aggregate investment flows, in which the marginal efficiency of capital (investment) and the rate of interest match off against each other, with the rate of interest dominating. But Keynes clearly thought that the 'animal spirits' of business people and the cost and availability of finance and credit were dominant (for most periods) in determining the desired level of accumulation. He argued that conventions (e.g. regarding the future as akin to the present and past, unless there were good reasons for expecting otherwise) dominated decision-making and allowed actions to occur, usually at levels that would not match full employment voluntary saving. In so arguing, he anticipated the themes of Nicholas Kaldor's (1939) greatest theoretical article, 'Speculation and economic stability'. Kaldor analysed markets where stocks dominated flows and expectations about future events and other people's behaviour dominated the usual fundamentals in markets in determining prices. With this was associated a most important Kaldorian and Keynesian insight—the

importance of established norms set by expert market makers for the attainment of stability in individual markets and economic systems as a whole. In their absence, speculative activity feeds on itself in a cumulative process of destabilization.

### 1.5 Keynes's Method

Keynes always remained a Marshallian in method, even in his most radical theory of shifting equilibrium (Keynes, [1936] 1973, pp. 293–294) which forms the basis of the post-Keynesian theory of distribution and growth in the post-war period (Robinson, 1956). Keynes's approach was recursive and recognized mutual determination; but because of his keen sense of the different lengths of actual time that components of interrelated processes needed to work themselves out, he was wary of suggesting simultaneous determination. Keynes also never developed (nor would he probably have accepted) the theory of cumulative causation, which comes from Adam Smith, Allyn Young (1928), Veblen and then Kaldor and Myrdal in the post-war period. The theory rejects the traditional neoclassical approach to economic theory whereby the factors responsible for uniqueness of equilibrium are independent of those responsible for local and global stability. This implies that the factors responsible for the trend are independent of those responsible for the cycle. As this too is rejected, it is one reason why cumulative causation and cyclical growth theory are closely related. The most succinct statement of all this is by Kalecki (1968, p. 434): 'The long-run trend [is] but a slowly changing component of a chain of short-period situations . . . [not an] independent entity.'

In other words, Keynes's method stresses the relation between cause and effect in determining key variables and relations in the economy. As a result, all variables are not equal, some have more important roles in key areas of the economy. This can be contrasted with the view that everything determines everything else, such as in a general equilibrium framework or the IS-LM model, where simultaneous determination of equilibrium puts all variables and relations on an equal footing, and makes all relations symmetric. In contrast, for Keynes, there is a causal ordering to the way things happen and the manner in which variables influence each other. His system is neither capable of simultaneous determination nor symmetric. In fact, most of the major economic relationships in *The General Theory* are non-symmetric.

The causal method suggests analysis by stages. First we consider (say) the monetary sector, where the level of nominal income, liquidity preference and the money supply determine the rate of interest. Then this rate of interest, together with the marginal efficiency of capital (and expectations) determine the level of investment, which, in turn, with other variables determines the level of output, which is then used to modify the previous analysis of the monetary sector. This approach was used elsewhere by Keynes, where he separates the analysis into a number of logically and

sequentially separate stages. There is a definite logical sequence in which relations are determined.<sup>6</sup>

To illustrate this point, consider the key relationship in *The General Theory*, the *ex ante* equality of saving and investment. In a general equilibrium framework, such as the IS-LM model, both saving and investment are determined by many variables, which are themselves determined by many variables and so on. In equilibrium they are equal—but we cannot really say what ‘caused’ that equilibrium, as it is the result of every variable in the model. Keynes provides an ordering of how influence is transmitted. Although other variables may exert some impact on saving and investment, the major relation is that of the multiplier, whereby changes in investment generate equal changes in saving through their impact on the level of income. That is, as discussed above, it is changes in income that bring *ex ante* saving and investment into equality. This is a specific causal mechanism, whereby a key variable, income, is the cause of changes in saving.

So, why is Keynes’s causal method important? It imposes a very different vision of the economy. It allows us to concentrate on certain key variables such as income and investment, and makes policy more transparent. Because the key variables and relations are identified, it becomes clear which ones should be targeted and what their main or primary impact will be. In the general equilibrium model, where all variables influence all other variables, policy implications are difficult to draw out; in the Keynesian system, the most important causal variables are readily identifiable and so susceptible to policy manipulation.

Whether Keynes would have accepted IS-LM as a representation of his views, a proposition consistently and vehemently denied by those closest to him (Joan Robinson and Richard Kahn), is a moot point. An IS-LM interpretation may be read into *The General Theory*. ‘We have now introduced money into our causal nexus for the first time, and we are able to catch a first glimpse of the way in which changes in the quantity of money work their way into the economic system’ (Keynes, [1936] 1973, p. 173). Fortified by a *ceteris paribus* assumption that may not actually hold, he then sets out monetary and real relationships that may be captured in IS-LM terms and were in fact done so by Reddaway, Champernowne, Meade, Harrod and Hicks when *The General Theory* was first published. But the limitations of this representation are also clearly implied; it requires that the IS and LM relationships be independent of each other—as Donald Moggridge (1976) explained so succinctly and persuasively in the appendix to his *Modern Masters* volume on Keynes, and it ignores the essential causal relations of *The General Theory*.

## 1.6 Keynes and the Role of Money in an Open Economy

Another major area that comes under the rubric of Keynesianism is the much debated question of whether money and finance are exogenous or

endogenous variables. Keynes thought of them as endogenous. But this must be coupled with his methodological view that whether variables are regarded as endogenous or exogenous was a relative, rather than an absolute, judgement. It depends on the issue being analysed and how far processes had gone before the analysis of a particular situation started.

*The General Theory* has been interpreted as way off Keynes's usual regression line. This is especially so with regard to the quantity of money and also with regard to the principal setting of *The General Theory* being a closed economy.

Keynes's analysis of the supply and demand for money determining the rate of interest needs to be modified in the light of evidence of the endogeneity of money and the trend in central banking to set the interest rate according to policy rules. As a result, the interest rate has become a policy variable, with the main role of money demand being in determining its supply. In other words, money demand and supply no longer have a major role in the setting of interest rates. While this suggests that Keynes's elaborate analysis of liquidity preference may not be relevant in analysing domestic monetary factors, it does not mean that this analysis is no longer of interest. As is argued below, this important extension of Keynesian analysis is extremely useful in understanding the international supply and demand for currency, and the determination of exchange rates.

Surprisingly, there is little explicit analysis of open economy influences in *The General Theory*, although Keynes ([1936] 1973, Ch. 23) clearly understood the importance of international trade as a mechanism for exporting unemployment. By contrast, if the span of Keynes's interests and the contributions over his life are taken into account, it is clear that he analysed open economy interactions and proposed international institutions and policies to tackle the problems they threw up. Vines (2003) points out that much of *A Treatise on Money* is concerned with these issues of international macroeconomics, and that Keynes had already recognized the major problems but had not yet made a completely satisfactory analysis of why they arose and what to do about them, mainly because the analytical system of *A Treatise on Money* was a halfway house between the old and the new.

*The General Theory* put little emphasis on the open economy aspects of Keynes's new theory or the role of international capital movements. But in his wartime writings and papers, Keynes set out the conceptual bases of open economy macroeconomics that has been developed in the post-war period (see Vines, 2003).

A more satisfactory analysis was to come in the years following publication of *The General Theory*, when Keynes worked on wartime finance in open economies. He was especially concerned about the UK economy, the sources of contractionary biases in the world economy, and the interrelationships of internal and external balance in individual economies and for the world as a whole.

Keynes wanted to show why creditor nations were bad world citizens, and to design carrots and sticks to keep countries from becoming creditors, as well as the institutions to help them succeed in not becoming creditor nations. He also emphasized the prior need for economies to reach internal balance before tackling the issues of external balance. The role of international institutions was partly to devise measures that allowed interrelated processes of vastly different lengths of historical time to operate in systemically acceptable manners. Keynes was much more favourable to free trade than to unregulated international capital movements, even when internal balance had been obtained. He wanted international institutions to create adequate liquidity to tide over economies that had to make structural adjustments without forcing them into contractionary measures.

Keynes also analysed the problems of post-war reconstruction, especially the plight of the UK, due to changes associated with fighting the Second World War, and the dominant role of the USA in the post-war period. All these issues lay behind setting up the International Monetary Fund and the World Bank, and negotiating the post-war loan from the USA to the UK.

As we know, Americans dominated the forms and conditions all these took, bringing in a modified form of the Gold Standard. They failed to create adequate provisions of liquidity or appropriate checks and balances within institutions to encourage good behaviour by creditor nations. Thus, Bretton Woods built into its foundations the conditions of its ultimate breakdown. Keynes was aware of this but lost the battle. He did, however, leave the conceptual bases for overcoming these problems—if only economists and politicians had had the good will to do so.

## **1.7 Extending Keynes—Exchange Rates Reconsidered**

As noted above, Keynes's analysis of price was strongly linked to his Marshallian vision, in which the cost of production played an important role. However, this analysis cannot be readily extended to financial markets, as many financial assets have zero cost of production, though they may have transaction costs. Keynes's analysis of the demand for and the supply of money illustrates this, with neither being related to production conditions. Rather, the demand for money was considered under the rubric of a number of specific demands, while supply was treated as being under the control of the central bank. It was argued above that in the current institutional environment, with interest rates in most countries being determined explicitly by the actions of the central bank, Keynes's analysis of the supply and demand for money determining interest rates is of limited relevance. However, there is another financial asset to which the analysis is extremely appropriate, namely international currency. Keynes's analysis of the factors determining the supply of and demand for domestic currency can be extended to provide an explanation of the factors determining exchange rates.

The determination of relative currency values depends on the specific exchange rate regime. In the case of floating exchange rates, the price of currency is determined by demand for and supply of it. In other words, the exchange rate is the price that equates the supply of and demand for a country's foreign exchange. This then leads to the question of the determinants of demand for currency, both of domestic by the rest of the world, and for foreign exchange by domestic residents.

The most appropriate framework for examining this issue is the one used by Keynes in explaining the demand for money. In other words, we can divide the demand for foreign currency into a transactions demand, a precautionary demand, a speculative demand and a financial demand. We consider each of these in turn.

Transactions demand for foreign exchange is the counterpart of Keynes's transactions demand for money; it reflects the demand for foreign exchange for everyday transactions. Under transactions demand we would include demand for foreign exchange to cover net exports of goods and services, and net income flows. The main determinants of transactions demand are the price and income elasticities of imports and exports, world and domestic income, relative prices and comparative inflation rates.

The other demands for currency are related to international capital flows, which arise for the three reasons discussed below. All of these relate to currency demand as part of an individual or an enterprise portfolio decision (Harvey, 2003).

Precautionary demand, according to Keynes, arises because people hold money as a hedge against the future, or as a safeguard. With floating exchange rate regimes, in particular, due to the extreme uncertainty as to future values of exchange rates, foreign currency may be needed now to hedge for future transactions, or to pay in the future for transactions arranged now, such as for repayment of debt.

Speculative demand relates to the demand for money as a financial asset. Speculators buy and sell assets according to expected future price of that asset. For Keynes ([1936] 1973, p. 170), underlying this motive is the 'object of securing profit from knowing better than the market what the future will bring'.

This motive is easily applied to foreign currency. The speculative motive depends on expectations about future movements in exchange rates, in the same way Keynes's speculative motive for holding domestic money depends on the expectations of changes in the rates of interest. Importantly, exchange rate speculation is self-fulfilling. If the market believes that a particular exchange rate is overvalued, then flight from that currency will lead to its depreciation, thus fulfilling the original belief.

Speculators will have some idea of what they expect the value of the exchange rate to be. Some economists believe that this expectation is based on 'economic fundamentals', which then are seen as playing a key role

in determining exchange rates through their influence on expectations. However, this need not and cannot be the case. Harvey (2001) and Taylor (2004) question the existence of any such fundamentals, suggesting that they represent nothing more than an *ex post* justification for actual movements, with no independent existence or explanatory power. 'For all practical purposes fundamentals do not exist – except when market participants convince themselves that one or another of the many candidates truly matter' (Taylor, 2004, p. 307).

Exactly as in the case of the Keynesian determination of the interest rate, where the rate of interest is determined by convention and by beliefs, rather than being anchored to any real factors, so too with exchange rates. There is a bootstrap equilibrium, where the expected value of the exchange rate will (if the expectations are held widely enough) become the actual value.

Keynes introduced the finance motive after *The General Theory*. In 1937 he published two replies to some critics of his analysis of interest that added an additional determinant of the demand for money. This was a demand for money to finance investment, which arises because 'planned investment—i.e. investment *ex ante*—may have to secure its "financial position" before the investment takes place; that is to say, before the corresponding saving has taken place' (Keynes, 1973, p. 207). This is readily extended to the international arena, when we consider that enterprises can finance domestic investment by going to foreign money markets, either in the form of equity or in the form of debt.

The relative importance of these motives in determining the demand for foreign exchange, and therefore the exchange rate, at any point of time will be determined by historical and institutional factors, such as the current exchange rate mechanism. For example, during the Bretton Woods years, the precautionary demand for exchange was relatively low due to the relative fixity of exchange rates, while the finance and speculative demands were similarly low due to the restrictions on international capital movements. More recently, there has been substantial exchange rate volatility, resurrecting the importance of the precautionary demand. Similarly, international capital movements have come to take over international transactions, so that finance demand, and more importantly speculative demand, have come to dominate the setting of exchange rates. In other words, the transactions motive accounts for such a small proportion of total international transactions that any explanation of exchange rate determination based on it 'is obsolete' (Taylor, 2004, p. 314).

As mentioned above, it is reasonable to assume that, in the post-Bretton Woods era, the determination of exchange rates is dominated by speculative, and, to a lesser extent, financing flows. Regarding the former, the demand for a particular currency is a demand for an asset on the basis of a potential capital gain to be made on its re-sale. With respect to the latter, either in terms of debt or of equity, the demand for currency represents the counter-flow



to the financing of investment requirements. In 'normal times', we have Keynes's view that people rely on the convention that the future will be like the past. This convention will anchor the exchange rate at its current level and provide some stability to the system. However, outside normal times no such anchor is available, and speculators will look elsewhere for some indication of future movements in exchange rates. At this stage, the literature on uncertainty and the determination of expectations in a world of imperfect information will take a central role in the explanation of exchange rates. Harvey (1999) highlights the importance of bandwagon and cash-in effects. The important feature for speculators is not their own beliefs as to likely movements in exchange rates; rather, like Keynes's beauty contest, what is important is what they believe about the beliefs of other speculators.

Within this framework, a number of theories of the determination of exchange rates have been proposed. For example, purchasing power parity implies either that transactions demand dominates the setting of exchange rates or that speculators all hold purchasing power parity as the fundamental factor that dominates expectations. Taylor (2004) surveys the major theories of the determination of exchange rates and concludes that no theory provides an adequate explanation of the contemporary dynamics of exchange rate determination, but the theories may play an indirect role in influencing the expectations of economic agents, as 'the state of expectations in the market is the exchange rate's ultimate arbiter' (Taylor, 2004, p. 316).

The idea that, in the current international environment, exchange rates are mainly determined by expectations suggests a bootstrap equilibrium. This entails that expectations are profoundly influenced by past values of the exchange rate. In other words, there is a strong element of path determinacy in the determination of exchange rates.

## 1.8 Conclusions

This paper has considered what aspects of Keynes's *General Theory* are still relevant in understanding contemporary capitalist economies 75 years after it was published. It argues that many of Keynes's contributions in that book are still important and have not been absorbed into mainstream theory.

Of particular relevance is Keynes's conclusion that no mechanism within capitalism guarantees full employment and that if full employment is achieved by the market it is a fluke. The mechanism that orthodox economics assumes will generate full employment, namely wage flexibility, does not do so; by ignoring the fallacy of competition, the analysis is built on a flawed foundation. In contrast, according to Keynes, the level of effective demand determines the level of employment and there is no reason for demand to be sufficient to create full employment.

Keynes also demonstrated that, far from being neutral in the long run, money is an important independent causal factor in determining the level

of effective demand and therefore real economic activity. Fundamental to Keynes's vision was the interdependence of real and monetary factors, with each able to influence the other.

Related to this was the method of analysis Keynes utilized—that of causal inference. In rejecting simultaneous determination he showed that not all economic relations are equal, with some factors being significant causal determinants and therefore of particular importance. An example of this would be the key role investment plays in determining the level of economic activity and of employment. The all-permeating influence of uncertainty reinforces the idea that economic actors will focus on what they see as key factors in making decisions on which there can be no objective basis.

Finally, the paper has argued for the rehabilitation of Keynes's analysis of the supply and demand for money, but in an international context. In particular, the analysis provides an important framework for understanding the determination of exchange rates.

Seventy-five years after *The General Theory* was published, it still provides fundamental insights into the working of contemporary capitalist economies.

## Acknowledgments

We would like to thank Raja Junankar and Michael Johnson, both from the University of New South Wales, for their helpful comments on an early draft.

## Notes

1. The major theme of A.K. Dasgupta's (1985) *Epochs of Economic Theory* was that the development of dominant theories in economics reflected the historical events of the epochs with which they were associated. Dasgupta identified three epochs: classical including Marx, marginalist (he objected to the use of neoclassical to describe the second epoch) and Keynesian.
2. The classic reference is Feldstein & Horioka (1980); for a critique that contains James Meade's counterattack, see Dalziel & Harcourt (1997).
3. This is not an uncontroversial view, of course; it is not accepted by Eatwell, Garegnani and Milgate, for example.
4. See, for example, Keynes's (1973, p. 190) response to Ohlin.
5. This argument seems particularly absurd given the central role of Chapter 19 of *The General Theory*, titled 'Changes in money-wages', where Keynes specifically examined the impact of a reduction of money-wages on employment!
6. Pasinetti, (1974, pp. 43–45) compares this method with the similar method of stressing causal links in Ricardo.

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# 2

## *The General Theory* after Sixty Years: History or Economic Laws?

Joseph Halevi

### 2.1 Introduction

My attempt to evaluate the significance of *The General Theory of employment interest and money* will focus on the concept of effective demand beginning with a set of considerations vis à vis Classical and Marxian political economy. Indeed the principle of effective demand can be much more directly related to this body of thought rather than to Marginalist inspired doctrines. Furthermore Marginalism in its modern form has become so much devoid of conceptual content as to be challenged on methodological grounds by some of its most qualified practitioners (Clower, 1994; Malinvaud, 1995). In the process of the discussion it will be shown that Keynes was not wrong in dubbing all his predecessors as Classical. Finally, I will argue that during the long boom the level of aggregate investment has been determined in the main by external - non economic factors, thereby confirming Kalecki's and Keynes's sceptical views about the existence of endogenously created long-run propulsive forces.

### 2.2 The Classics: Marx

I have chosen to take Marx as the Classical reference with which to compare Keynes's notion of effective demand since the author of *The General Theory* himself in a famous letter to Bernard Shaw—reprinted on the back cover of the Macmillan paperback editions of the book—stated that his work will knock away the Ricardian foundations of Marxism. In reality, however, it was Kalecki who—proceeding from the Marxism elaborated in Central Europe—departed from Marx's framework (Halevi, 1992). I will therefore discuss both Keynes's and Kalecki's contributions.

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Revised from *Nóesis*, VII(7): 15–25, Julio/Diciembre 1996, La Teoría General de Keynes: Sesenta Años Después, "The General Theory after Sixty Years: History or Economic Laws?", by Halevi, J. With kind permission from *Journal of the Universidad Autonoma de Ciudad Juarez*, Mexico. All rights reserved.

Marx addressed the questions of a fully industrialized economy and, in this context, he brought Classical thought to its peak. In particular, Marx, by breaking with Malthusian naturalism, invented the first, and still the most logically robust, theory of the business cycle. One of the several achievements of the first volume of *Das Kapital* lies in making the process of investment and accumulation completely endogenous to the capitalist system. This is obtained through the well known mechanism of the Reserve Army of Labor, which, in turn, is based on the Classical hypothesis of the inverse relationship between the wage rate and the rate of profits. A simple set of accounting identities will clarify the point.

Consider  $X$  to be total corn output,  $K$  the corn stock of capital,  $d$  its rate of depreciation,  $a$  the output capital coefficient,  $w$  the corn wage rate and  $n$  the number of workers operating one unit of the corn stock of capital. The accounting relation for total net corn profits  $P$  is then:

- |                      |   |
|----------------------|---|
| (1) $P = X - W - dK$ | where $d = 1$ with circulating capital at full capacity |
| (2) $X = aK$         |   |
| (3) $W = wnK$        | where $nK =$ Employment $E$ , $W = wE$                  |

Substituting equations (2) and (3) into (1) and dividing by  $K$  we obtain the expression for the rate of profit:

$$(4) \quad r = [a - wn - d] \text{ where: } d = 1 \text{ at full capacity}$$

From equation (4) we see that the rate of profits is always inversely related to the wage rate, positively related to the output coefficient  $a$  and positively related to any decline in the labor capital coefficient  $n$  induced by technical progress. If we leave aside the special case of a falling rate of profit in the long run, due to a fall in  $a$  not matched by a greater fall in  $n$ , Marx's theory of the business cycle is entirely captured by equation (4). Capitalists, pushed by competition strive to invest all the surplus or most of it. Hence:

- |                   |   |
|-------------------|---|
| (5) $sP = I = dK$ | where $s$ is the propensity to save out of profits and it is very near 1. |
| (6) $g = sr$      | where $g$ is the rate of accumulation.                                    |

In accounting terms (6) is similar to the Cambridge equation of distribution which in a Kaldor-Pasinetti model operates *ex hypothesi* in a fully employed economy with steady growth. Yet in Marx the behavior of accumulation is based on a strong cyclical variation in the share of profits over output and in the rate of profit, both positively related to each other. In *Das Kapital*, the productive powers unleashed by modern capitalism—always strongly associated with machine production—cannot allow accumulation

to be limited by the natural increase in population. Thus, as capitalism initially develops from a small industrial core, it draws from the surplus population emanating from the hitherto non-capitalistic branches of the economy. Furthermore, greater productivity brings about a ruination of the petty commodity producer, which, along with the dispossession of the people living by natural right on the land, causes a systemic surplus population available for capitalistic exploitation.

As a consequence, having nothing but only their labor power to sell, these people will drive down the real wage rate. On the basis of equation (4) the fall in the wage rate is ipso facto transformed into a higher rate of profit, into a higher share of profit over national income and into a higher share of investment over total output. It follows that the presence of a surplus population speeds up the rate of accumulation and growth through the rise it induces in  $r$  (see equation 6). This is the inescapable conclusion stemming from Marx's own discussion of the law of capital accumulation presented in chapter 25 of the first volume of *Capital*. Subsequently, the quickening of the pace of accumulation will eventually bring about a dwindling of the Reserve Army of Labor. Wage rates rise and the rate and share of profits fall as prescribed by (4). Remember now that Marx adhered strictly to the Classical notion of competition, so that in the face of rising wages induced by a decline in the Reserve Army, firms can only react by changing the technological structure of production. In other words Marx's phrase according to which competition "compels [the individual capitalist] to constantly extend his capital in order to preserve it, but extend it he cannot except by means of progressive accumulation" (Marx, 1977 I, p.555), means that firms keep investing most of their surplus no matter how meagre it has become. Yet they will do so by demanding labor saving capital goods which is the only way firms can face up to the profit squeeze generated by the dwindling of the Reserve Army. Such a type of technical change will reduce the quantity of labor— $n$ —needed to operate each unit of machinery, resulting in technological unemployment compounded by the slow intake of workers into production due to the profit/investment squeeze. The formation of large scale unemployment will expand the Reserve Army and the wage rate will fall setting the stage for the cyclical upturn as predicted by equation (4). Through technical change the expansion of capitalist accumulation does not have to rely on surplus labor from pre-capitalist sector. The systemic fall in the labor coefficient  $n$  induced by the profit squeeze, will ensure an internal surplus population totally functional to the requirements of accumulation.

We may conclude this section by observing that Marx's system is very predictable once the Classical mechanism of the formation of a general rate of profit is combined with the specific interaction between the Reserve Army of Labor, the profit squeeze and the labor-saving process caused by the latter. Investment is virtually identical to surplus creation and the ratio of investment to the stock of capital approximates the rate of profits. This ratio will rise or fall according to whether or not the Reserve Army is large (or small)

enough to allow for a wage or a profit squeeze. It follows that investment is endogenously determined and so is the dynamics of technical change.

### 2.3 Effective Demand: The End of Marxian Laws

In Marx the cyclical variation in the rate of profits and in the distribution of income, constitute, with the long-run theory of the falling rate of profits, the General Law of capital accumulation. The Law leaves very little room for the working of the principle of effective demand. According to the Law unemployment brings down the wage rate and, with it, effective demand for consumption goods. At the same time the lower real wage restores the rate of profits and, through the endogenous creation of investment, it contributes to the next upswing. If we now think in terms of a two sector system, it will become apparent the problem of effective demand will tame Marx's optimistic views about the immanent dynamism of capitalist accumulation.

The endogenous expansion of the Reserve Army of Labor, by means of labor saving investments, will curtail effective demand for consumption goods thereby creating unused capacity in the consumption goods sector. If such a rise in unemployment leads also to a decline in the real wage rate, further unused capacity will emerge in the consumption goods industries. Under these circumstances, the level of investment demand stemming from the consumption goods sector is likely to suffer causing unwanted unused capacity in the investment goods industries. As a consequence, the system instead of moving onto a higher rate of accumulation, as prescribed by Marx's theory of cyclical growth, will plunge into a state of chronic depression with structural unused capacity. In other words, the Reserve Army will not be used to restart the process of growth. It follows that Marx's reliance on the competitive tendency to a uniform rate of profits in order to force the capitalist to constantly extend his capital by means of progressive accumulation, was excessive.

The introduction of effective demand considerations into Marx's own framework has actually derailed the working of the fundamental Law of capital accumulation, while reducing, at the same time, the importance ascribed to the formation of a general and uniform rate of profits. Not only is the system no longer able to implement its compulsion to accumulate but, with the emergence of unused capacity as a structural phenomenon, the rate of profits need not be systematically inversely related to the wage rate. Hence:

$$(7) \quad p = u(a - wn - d)$$

where  $p$  is the new rate of profits when the rate of capacity utilization  $u$  is less than unity.

Differentiation of  $p$  in relation to both  $u$  and  $w$ , shows that the rate of profits will not be, in general, inversely related to the wage rate because of the capacity utilization factor  $u$ . Such a factor cannot be taken as stable or as adjusting to a desired value  $u^*$ . For  $u^*$  to exist as a meaningful target, even



as an attractor, the process of accumulation should have a built-in tendency towards a steady state, an event that modern growth theory has shown to be extremely remote (Halevi and Kriesler, 1991).

As a consequence, the formation of unused capacity is not just an occurrence at the bottom of the crisis which will be weeded out by bankruptcies—due to price deflation—thereby leaving a clean terrain for the subsequent recovery. The principle of effective demand makes the rate of capacity utilization emerge as a persistent feature in the working of a capitalist economy. In other words, as Pasinetti has pointed out, the difference between actual and potential output is a central characteristic of an industrial system (Pasinetti, 1974).

In terms of the example given above, the upshot of the discussion is that if wages fall as prescribed by the conditions of recovery in the Marxian trade cycle, the system instead of reaching out towards the higher notional rates of profits and growth, is likely to move to a lower rate of capacity utilization in both the consumption and the capital goods industries. In this context, the unemployed cease to function as a Reserve Army of Labor and their role is no longer that of regulating the cyclical expansion of capitalist production. Unemployment is the product of the failure to invest as correctly understood by Keynes. Let us note that once the regular or normal pattern of classical accumulation is broken, workers can claim for higher wages also under conditions of mass unemployment.

With investment being determined by, and being the determinant of, the level of effective demand and output, the Classical laws of motion lose their thrust. We simply no longer know what the direction and the share of investment will be. To go back to our example of a fall in consumption demand due to the impact of unemployment, we could say that, with the appearance of unused capacity in both sectors, it is impossible to establish in a convincing functional way the level of investment, which therefore may be treated as exogenously determined. Profits, while continuing to be the main objective of capitalist production, do not lead accumulation but depend on the externally given level of investment, as described by Kalecki in the formula (Kalecki, 1971, p. 2):

$$(8) P = (B + A)/s \qquad B = \text{autonomous capitalists' consumption}$$

Where  $A$  is investment (gross accumulation in Kalecki) and  $s$  is the propensity to save out of profits. Investment appears as an exogenous factor; its changes are not functionally related to variations in the share of profits over output (Kalecki, 1971). Under these conditions it becomes impossible to map out a regular investment and cyclical pattern of accumulation. In this way, Classical laws, centered on the link between the tendency towards a uniform rate of profits and accumulation, cease to act as gravitational and inertial forces.

Nowhere is such a break with the long-run dynamics portrayed by Marxian political economy as clear as in Kalecki's treatment of wages and class struggle in an effective demand framework. It suffices to compare Kalecki's *Money and real wages* (1939) and *Class struggle and distribution of national income* (1971), with Marx's *Wages Price and Profit* which is based entirely on the theory of cyclical growth summarized earlier. In the first of the two essays Kalecki argued that unemployment and the business cycle exist also in a flex-price system. Hence if money wages are reduced in the presence of unemployment, prices will decline pro-tanto leaving the situation unchanged. By contrast, under conditions of imperfect competition the same fall in money wages will be accompanied by a lesser flexibility in prices which will cut real effective demand for wage goods. As a consequence unemployment is not due to the particular strength of collective bargaining. The same argument is reiterated in a more dynamic form in the 1971 essay where Kalecki assumed an overall increase in money wages. In this case, if prices were to increase exactly by the same proportion the system would be a perfectly competitive one. If prices do not rise as much as wages, markups will shrink and employment will expand under the impact of higher consumption demand. It follows that according to the principle of effective demand, collective bargaining is not the cause of unemployment while its role in an expansionary situation is to cut into the markup of oligopolistic firms thereby ensuring a higher level of demand. This result is made possible by the link between oligopolistic pricing and unused capacity which, according to Kalecki, is always present in the system.

From Marx's point of view, as expressed in *Wages Price and Profit*, the ideas put forward by Kalecki would make little sense. Wages, Marx would say, do not rise and fall independently from the rate of accumulation which determines the size of the Reserve Army of Labor. The dependence of the dynamics of real wages upon the rate of accumulation implies that variations in wages have no impact on the prices of commodities but affect distribution instead. Marx therefore sees the attempts to raise money wages as a response to a rise in the value of labor power measured in terms of the hours socially necessary to produce the basket of wage goods. Such a view stems from the fact that the share of investment is endogenously determined and its long-term function is to restore the conditions of accumulation in an upward, albeit cyclical, direction.

The comparison between Marx and Kalecki, who developed the concept of effective demand better than Keynes, allows us, however, to conclude that Keynes was correct in labelling all the economists before him as *Classical*. Indeed for both Classical and Marginalist economists the act of saving is nothing but a procedure leading to investment. In the Classics, the size of the surplus and level of profits are synonymous, while savings are almost identical to profits. Thus Classical causality runs from Surplus to Profits to Investment to Accumulation and, if all profits are saved, these terms are

just the same expression for the increment in the stock of capital. For the Marginalists the process is more complicated because of the intervening role of the rate of interest to equilibrate the supply for and the demand of capital (saving and Investment) at full employment. Both approaches do assume that a prior pool of savings and profit is the necessary condition for investment to occur. In this respect Marginalist and Classical political economy, although in conflict on the crucial questions of value and distribution are conservative in nature when confronted with the implications of the concept of effective demand. In this context Keynes's view that an act of individual saving is "not a substitution of future consumption demand for present consumption demand", but it is "a net diminution of such demand" can be applicable also to a Classical framework (Keynes, 1936, p. 210). In the latter case instead of referring to an intertemporal consumption preference it would be necessary to specify that an act of saving does not constitute an act of accumulation.

## 2.4 Dynamics as Short-Period Analysis

It follows that the principle of effective demand frees one's thoughts from the constraints arising from deterministic regularities. The persistent formation of unused capacity without any systemic target rate of capacity utilization, allows both wage rates and profit rates to rise in tandem with increases in the degree of capacity utilization. Under conditions of technical change and rising productivity the positive relation between wage and profit rates becomes notionally the norm.

Therefore Keynes's conceptual framework is liberated from the iron clad laws concerning the link between accumulation and the rate of profits. In Keynes's world there is no reason to wait for the accumulation of profits in order to generate investment. The latter can be financed by credit and profits turn out to be the ex-post accounting saving generated by prior investment. At the same time contradictions do arise but not because of the need to accumulate profits in order to finance investment.

The absence of deterministic and mechanical tendencies implies that the fundamental conflict lies not in the rate of profits versus the wage rate but in the internal composition of the capitalist classes.

A monetary economy cannot be conceived without the existence of financial markets. These markets do not act just as intermediaries facilitating investment. In a sophisticated economy they generate alternative means in which wealth can be held. In so doing financial markets give rise to very strong constraints on firms' plans and on banks' credit (Parguez, 1996a) To satisfy the constraints imposed by the financial sector, industrial firms—which in a monetary economy tend to operate on a debt basis—have to generate a certain rate of return which includes the interest to be paid on their debts. Now, as pointed out by Parguez (1996b, 1994), positive

expectations about the future capital value of firms determine productive decisions. Firms' debts are held by traders in the financial markets which include the banks themselves. If these anticipate a fall in the future capital values of firms relatively to firms' demand for credit, private financial institutions would impose credit rationing on firms' expenditure plans. Firms must convince financial markets of their profitability being thereby pushed to increase their rate of return at the expense of wages *prior* to an expansion in output which—by increasing the rate of capacity utilization—would have accommodated both a higher rate of profits and a higher wage rate.

The conflict between long-term investment and the alternative ways in which savings can be held in a monetary economy, was expressed by Keynes in chapter 12 of *The General theory*, titled the "State of Long-Term Expectation". The chief lesson from reading that chapter is that long-term expectations, which sustain the investment process, cannot be anchored to any robust and predictable behavioral pattern, unless institutions and State policies are brought in explicitly. In other words, a pure theory of investment is impossible. Thus, any discussion about the macroeconomic impact of investment cannot be but placed in its specific historical and political setting and cannot be derived from models where virtually all the variables are economic ones in the most abstract sense of the word. Indeed, this is according to me the main reason why Kalecki's post war attempts to build a theory of investment have failed. It is not a coincidence that Kalecki's work is remembered in relation to mark up pricing as well as for the connection between effective demand and reproduction schemes. Yet his approach to the determinants of investment is hardly mentioned. Indeed, if the economy—that is the society—is portrayed by the level of output as a whole which is made to depend on the level of aggregate investment, then the latter is inseparable from the socio-political circumstances in which it occurs. It is much better to treat it as an exogenous variable.

## 2.5 Politics as the Source of Exogenous Impulses

The idea that the determinants of investment can only partly be found within the spectrum of the decisions taken by individual firms, introduces a conceptual break in the historical reading of the process of economic evolution. I will now give some examples of the different perspective that emerges from looking at investment not as resulting from endogenous accumulation but as determined by ad hoc historical and political circumstances. I will concentrate on certain aspects of East Asian industrialization.

A great deal of today's Japanese brand names are companies whose industrial strength emerged during the 1930s, that is during a period of world depression. In Japan the same decade marked the phase of heavy and chemical industrialization. The source of the process was not at all endogenous. It originated in the political response to the crisis that hit Japan with the

onset of the Great Depression in the United States. In 1931, Japan embarked on a renewed imperialist expansion towards China and the militarization imposed upon the economy was the single most important factor in the process of heavy and chemical industrial growth and of technological change (Johnson, 1982).

Imperial expansion while industrializing the economy could not solve Japan's balance of payments problems since the yen area did not create enough surpluses with the rest of the world to finance Japan's deficits (Nakamura, 1983). The more Japan expanded into China, the more it encroached upon American interests, eventually leading to a global conflict. After the WWII the essential phases of Japanese reconstruction and capital accumulation were also determined by ad hoc circumstances rather than by immanent long-period forces. The only long-period force is the determination to industrialize which has guided and united institutions with the private Zaibatsu system (Calder, 1993). By itself this orientation was not sufficient to guarantee long-term accumulation. As shown by the outcome of the military expansion of the 1930s such a volition can encounter insurmountable barriers, which are first and foremost political in character such as the specific interests of the United States at the time.

After 1945 even the integration of Japan into the American system as a key factor in countering the emergence of the movements of national independence in Asia and of the People's Republic of China, did not provide sufficient momentum for the Zaibatsus to regain confidence and animal spirits. What really brought accumulation back was the Korean war and the subsequent financial and diplomatic measures undertaken by the USA to wrap Japan in a highly protected environment, made even safer by the long wave of Washington's public expenditure in Asia engendered by the Vietnam war (Schaller, 1985).

In conclusion, if capitalism's dynamics does not depend on endogenous systemic laws governing accumulation, it is quite legitimate to invert the Marxian concern with the economic base and to consider socio-political and power relations as the main determinants of the pattern of economic activity. Keynes's ultimate indeterminacy as to the forces leading investment decisions tells us just that.

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# 3

## Notes on Keynes' Aggregate Supply Curve

*J. W. Nevile*

There is a widespread view that the assumption of many small firms, each able to sell as much as it wishes at the going price, is incompatible with the conclusion of the *General Theory* that equilibrium with less than full employment is possible. The argument has been summed up clearly and succinctly by Chick.

It is fairly widely agreed that in the *General Theory*, Keynes (1936) used the conventions of perfect competition . . . yet for many the conclusions of the *General Theory* are incompatible with that market form. The central problem is this: perfectly competitive industries are populated by very many firms, each of them relatively small and having a negligible influence on the market. Therefore, each firm can sell all it likes. How can these be persistent unemployment if firms can sell all they want to sell? [Chick, 1991, p. 2]

Chick does not accept this point of view and argues that even perfectly competitive firms are not price takers, in the sense that they can ignore other firms' supply decisions, and are demand-constrained just as much as firms in imperfect competition or oligopoly. She then shows that on this interpretation all forms of market structure are compatible with the analysis in the *General Theory*.

This note does not disagree with the argument that all the forms of market structure considered by Chick are compatible with the *General Theory*. It argues, however, that it is useful to consider a market structure in which firms are not demand-constrained, except in the trivial sense that they cannot sell at a price greater than the market price, and that this form of market structure is also compatible with the analysis in the *General Theory*. The matter is of some interest. While, as Chick points out, Keynes was careful not to

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allow his analysis to rest on the assumption of any particular market form, many who read the *General Theory* feel that Keynes nevertheless tended to think in terms of small firms that are price takers in the traditional sense. There is no conflict between thinking in these terms and the analysis of the *General Theory*. This conclusion is of interest in its own right, and it also makes clear that persistent unemployment of the kind analyzed in the *General Theory* is not dependent on monopoly elements in the product market. There can still be involuntary unemployment when firms can sell all they wish at the going price.

That is the first conclusion of this note, but the analysis used also enables another common problem with Keynes' aggregate supply curve to be addressed, the infamous footnote on page 55, and some fallacies that this footnote has given rise to are exposed. Again, Chick is taken as the example to discuss; this time because of the authority of her 1983 textbook in this area. It will be shown that the effort to reconcile the page 55 footnote with the rest of the *General Theory* has led Chick into an error, facilitated by an earlier error in an otherwise well-written book. Despite Chick's attempts to make sense of it, the footnote is simply an error by Keynes.

Perfect competition has a number of overtones that were foreign to Keynes' way of thinking about economics. Keynes was a Marshallian, not a Walrasian. One of the Walrasian attributes of perfect competition, perfect knowledge, Keynes explicitly rejected in the *General Theory*, pointing out that production is usually undertaken under uncertainty, on the basis of an expected price but not a price known with certainty, and that investment is undertaken on the basis of usually very uncertain expectations about the returns to capital in the long period (1936, pp. 46–47). Therefore, in the context of the *General Theory*, the term perfect competition is not appropriate to describe the situation of a large number of small firms and I will use instead the term pure competition. Pure competition exists in a market in which there are many sellers and many buyers, buyers have no customer loyalty and seek the lowest price, all sellers are small and can sell as much as they like at the going price, and there is no collusion. For each firm the demand curve is a horizontal straight line. If it charges more than the going price, it can sell nothing and, since it can sell as much as it likes at the going price, there is no point in offering to sell at a lower price.

It is important to remember that Keynes' analysis is explicitly short-period in the sense that both the number of firms and the fixed capital equipment available for use by each firm is fixed. Keynes assumed the traditional U-shaped short-period average cost curve (1936, p. 42). The situation facing a firm expecting a price  $P_1$  is shown in figure 3.1, and in this situation the firm will produce  $Q_1$ . A situation in which the firm is making above normal profits has been deliberately chosen to show that even in this situation there is no conflict between the assumption of many small firms which are price takers and Keynes' analysis. There is no incentive for any firm to expand



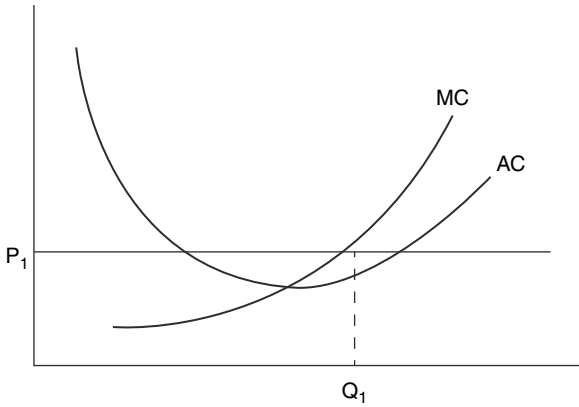


Figure 3.1 Short run cost curves

production past the point  $Q_1$ . The sum of all firms' planned output is the point of effective demand, which can just as easily be at a point of less than full employment as at full employment. Of course the expected price may not equal the actual price, though Keynes assumed that differences were usually not large. If it does not, the firm will make windfall gains, or lower profits, than expected. If the price is much lower than expected, the firm may decide not to sell all it has produced (if it expects a higher price next period), but by the time it knows the actual price, it has irrevocably committed itself to producing  $Q_1$  in the current period.

All this is short-period analysis. What about the longer run? In the situation depicted in figure 3.1, will not the fact that firms are making above normal profits lead them to expand capacity through new investment increasing output and employment, or alternatively lead new firms to enter the industry with the same effect?<sup>1</sup> This is certainly "not necessarily so." Capacity will only be expanded if firms and potential firms expect price  $P_1$  to persist in the long run, and, if the price does persist, for the consequential marginal efficiency of capital to be greater than the rate of interest. If the rate of interest is high, above normal profits may not be large enough to make it worthwhile to expand capacity, even if the price is expected to persist for some time, and in any case the price may not be expected to be maintained. Keynes stressed how volatile long-run expectations are and that there was no reason why they should be at the level which produces full employment (1936, ch. 12). If long-run expectations are high, investment will be high and so will be employment, and if long-run expectations are depressed, investment will be low and employment will be low. But long-run expectations need not depend on current conditions as encapsulated in  $P_1$ . Keynes preferred to downgrade current conditions and focus on future

prospects when discussing the determinants of long-run expectations (1973, p. 79). Pure competition may not be a very common market form at the end of the twentieth century, but there is nothing in it that is incompatible with the *General Theory*, and there is no reason to discard the belief that it is the market form Keynes had at the back of his mind when writing that book.

Coming back to the discussion of the short period, the above analysis makes clear that the price of consumption goods rises as output increases, with consequent implications for the slope of the aggregate supply function. It will be remembered that Keynes' aggregate supply function is an analog of Marshall's supply function for an individual industry, except that Keynes' function is net of user cost: to avoid double counting when aggregating, Keynes effectively worked in value-added terms. Because Keynes did not think that the concept of the general level of prices was precise enough to use in economic analysis (1936, p. 40), his aggregate supply function does not have price on the  $y$  axis,<sup>2</sup> but price times quantity, or total revenue, which has just as clear-cut a meaning when aggregated as it does for a single firm or industry. Similarly, since he was not willing to deflate the value of total output by an aggregate price index, Keynes put employment not the quantity of output on the  $x$  axis. However, employment was not measured by the number of people, or people-hours, but each hour worked was weighted by the wage rate paid, with a weight of one for "ordinary" unskilled labor. Because wage relativities change only slowly, Keynes thought it was possible to work in terms of wage units, and, assuming that wage relativities reflect productivity differences, in terms of labor units.

Keynes wrote his aggregate supply curve algebraically with expected total revenue a function of employment but the causation ran from expected total revenue to employment (1936, p. 24). Entrepreneurs would have an expected price in mind (1936, pp. 46–47). Given that price, they determined how much to produce, as in figure 3.1, and hence how much employment to offer. The expected price times the planned output gives the expected total revenue which in the supply function determines employment.

In footnote 2 on page 55 of the *General Theory*, Keynes states that:

if wages are constant and other factor costs are a constant proportion of the wages-bill, the aggregate supply function is linear, with a slope given by the reciprocal of the money-wage.

Chick tries to justify this claim as follows:

If everyone is paid his marginal value product, the increment of employment, of whichever kind of labour comes with it is an equivalent increment in the value of output:  $\Delta N = \Delta PQ$ . This implies, as Keynes states in the footnote ... that the slope of  $Zw$  [i.e., deflated aggregate supply curve] is unity. [1983, p. 70]

Chick's statement can only be correct if price is constant, that is, if in aggregate the increase in total revenue  $\Delta(PQ)$  is equal to  $P \cdot \Delta Q$ . Figure 3.1 shows that, although each firm faces a horizontal demand curve, output cannot increase in the short period unless price (or rather the expected price) rises, that is, unless for every firm the horizontal demand curve shifts upwards. Therefore, the increase in total revenue is not equal to  $P \cdot \Delta Q$  but to  $P \cdot \Delta Q + Q \cdot \Delta P$ .<sup>3</sup>

The fact that the slope of the aggregate supply function is not unity, as asserted by Keynes and Chick, has implications for multiplier theory. We have become accustomed to thinking of the multiplier in real terms, without worrying about what indexes are used to deflate consumption and investment. (Should "savings" be deflated by the consumption price index? If so, it will no longer necessarily equal investment deflated by an investment price index.) It is only when Keynes' aggregate supply curve, with proceeds measured in terms of wage units, has a slope of unity that the way we typically think about the multiplier is correct, because it is only in this case that the price of consumption goods does not change relative to investment goods. This note has shown that under pure competition the slope of the aggregate supply function is greater than unity. In this case, as Keynes himself notes (1936, p. 114), the multiplier in terms of real income (assuming one can measure it) is smaller than the employment multiplier, which itself is smaller than the multiplier for income measured in terms of wage units, or the one Keynes uses in the *General Theory*<sup>4</sup> (see [1936], p. 115). In general, the greater the slope of the aggregate supply function, the smaller is any one of these multipliers.

## Notes

1. In many industries, even under pure competition, existing firms may have some competitive advantages, for example, in agriculture they may own the most fertile soil. If this is the case and if they are in a situation where their long-run average cost curves are not rising steeply, existing firms may supply additional capacity in the long run. If existing firms do not have significant competitive advantages, or if they are facing steeply rising long-run average cost curves, new capacity is more likely to be provided by new firms.
2. Keynes used algebra rather than a diagram, but it is easier to think in terms of the well-known diagram of a supply curve.
3. It is worth pointing out why Chick did not notice her error in order to prevent others from making the same mistake. Chick was thinking in terms of labor being measured in "efficiency units" (1983, p. 70). This is only the case when there are constant returns to labor in the short period. Then, price does not change as output increases and Chick's analysis is correct. However, Keynes assumed diminishing returns in the short period. He alludes to this again and again in the *General Theory* (see, e.g., 1936, pp. 299–300). In addition to conventional diminishing returns, Keynes also argues that costs may rise as output increases because less efficient labor is drawn into production (1936, p. 249).

4. Because of diminishing returns, employment must increase proportionately more than real income. Income measured in wage units must increase proportionately more than employment because price rises in terms of wage units even if the profit share does not increase; for example, with a standard Cobb–Douglas production function, the short-period aggregate supply function is a straight line with a slope equal to the reciprocal of the wage share. This is greater than unity so prices rise as output increases even though the profit share is constant (see Davidson, 1962).

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# 4

## What Keynes Would Have Thought of the Development of IS-LM

*J. W. Nevile*

### 4.1 Introduction

IS-LM was originally devised as a way of interpreting the core of the theory in Keynes' *General Theory of Employment, Interest and Money* and showing the differences between that theory and the theories of those that Keynes, in an admitted solecism, called classical economists (GT, p. 3).<sup>1</sup> The IS-LM model was so successful that for a generation of economists, and many generations of undergraduates, it became "Keynesian" economics as far as the conventional wisdom was concerned. However, some of Keynes' closest followers repudiated IS-LM analysis; Joan Robinson going so far as to call it bastard Keynesianism (1975, p. 128). Hicks himself, in later life, thought that, as an explanation of what Keynes was saying, IS-LM

"succeeded perhaps only too well. For it is no more than a part of what Keynes was saying, or implying, that can be represented in that manner, and it was easy to take it as the whole". (1982, p. 100).

Thus, it is of considerable interest to speculate on what Keynes would have thought about the way IS-LM became identified as "Keynesian" economics for most of the economics profession. We know, of course, what his first reaction to IS-LM was in 1937. But Keynes' heart attack later in 1937, the demands of the war, planning for post war reconstruction and his untimely death in 1946, together ensured that Keynes did not have the length of time to reflect on the matter that is necessary for a mature judgement. Moreover, the way IS-LM has developed and has been used over the last 50 years has gone far beyond the spirit of Hicks' original article. While Keynes may not have gone as far as some of his disciples in rejecting IS-LM in the way it was used in the

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1950s and 1960s, even then its use showed ways of thought contrary to some fundamental aspects of the *General Theory*. Be that as it may, the way IS-LM has been used in the last decade or so would have been rejected outright by Keynes as completely against the central message of the *General Theory*.

In the previous paragraph mention was made of speculating on what Keynes would have thought about the development of IS-LM. While any discussion of Keynes' views on methods of economic analysis developed decades after his death must entail some element of speculation, there is enough in the *General Theory* and subsequent writings by Keynes for speculation to be based on sound judgement. We can say with some confidence, which, if any, of the comment, made in his famous letter to Hicks, Keynes would have modified and which he would have emphasised if the letter had been rewritten decades later. We can also be confident about at least some of the things Keynes would have said about the development of IS-LM and the way it has been used in recent times.

Before we do this it is helpful to remind ourselves (or even to learn for the first time) what Keynes was saying in the *General Theory*. It is over 30 years since Harry Johnson described the *General Theory* as a classic—a book “that everyone has heard of and no one has read” (1961, p. 1). Moreover, just because IS-LM became so widely accepted as the essence of “Keynesian” economics, for many economists understanding IS-LM became a natural substitute for reading the *General Theory*. While this may not result in too much violence to Keynes' liquidity preference theory of interest, it certainly results in a significant misunderstanding of Keynes' way of doing economics and the nature of his theory of employment and output. Therefore these two things will be briefly set out in the next section.

## 4.2 Keynes' Theory of Employment and Output

Keynes claimed to have achieved in the *General Theory* his aim of showing “what determines the volume of employment at any time” (GT, p. 313). Thus, even what he was trying to achieve was very different from the goal of most economic theorising today, including IS-LM analysis. The major body of economic theory today, as taught in universities or as written in scholarly journals, is concerned with the determination of variables in equilibrium. Usually employment theory is about what factors influence the level of employment in equilibrium, and not about what determined its actual value in some actual month (or year). In Joan Robinson's terminology (1962, 23–29) most modern economic analysis is equilibrium analysis whereas the analysis in the *General Theory* is historical analysis. Equilibrium analysis cannot tell us what the value of any particular variable will be at any particular point in time. It tells us what the values of several variables must be if the economy, or perhaps some part of it, is to be in equilibrium. Strictly speaking there is no causation. A number of variables are determined

simultaneously. It is not valid to say *a* causes *b*, all we can say is that, if it has such and such a value, then, given the values of *d*, *e* and *f*, *b* must have such and such a value if equilibrium is to be achieved.

On the other hand historical analysis does have causal chains; it makes sense to say *a* causes *b*, whether or not the economy, or the part being analysed, is in equilibrium. Keynes spelled out causal relationships—some very simple to make basic points and some much more complex. The simplest and most basic is perhaps “the propensity to consume and the rate of new investment determine between them the volume of employment” (GT, p. 30), but this is just one example among many.

Keynes then was not primarily concerned to lay down a set of conditions that must hold in equilibrium, but to show “what determined the volume of employment at any time”. But of course, in doing this, he was very concerned to show that the existing theory of employment was fatally flawed. He was concerned to show that an equilibrium is possible in which there is involuntary unemployment, i.e., that there can, and may well be times in the real world in which employment is in equilibrium at a level at which the real wage is not equal to marginal disutility of employment (GT, p. 21).

Keynes assumed a given state of technique and resources (including the stock of capital). In other words his analysis was short-period analysis in the Marshallian sense.<sup>2</sup> At different stages in the *General Theory*, Keynes also assumed a number of other key variables were constant, but often this was for convenience rather than an essential aspect of his analysis. In showing what determines employment Keynes starts with a very simple case and then relaxes various simplifying assumptions to arrive at his final theory (or model as we would say today).

The most important of these simplifying assumptions made initially for expository reasons is the assumption of constant money wages. Since there has been so much confusion about this assumption and so much discussion about the extent to which it is necessary for Keynes’ conclusions to follow, it is worth a short digression to spell out what Keynes did say.

Keynes thought the assumption of rigid money wages realistic in a variety of circumstances (GT, p. 14), but in Chapter 19 of the *General Theory* he discussed the effects of relaxing this assumption. Keynes acknowledged that a reduction in money wages with the nominal money supply unchanged can have the same effect on the real quantity of money and hence the rate of interest as an increase in the nominal supply of money with the wage rate unchanged (GT, p.266). He did qualify this by saying that it was at least so in theory, but equally important in his mind were the limitations of either a sole reliance on monetary policy or a sole reliance on wage cuts, to restore full employment.

“Just as a moderate increase in the quantity of money may exert an inadequate influence over the long-term rate of interest whilst an immoderate increase may offset its other advantages by its disturbing effect on confidence; so a moderate reduction in money-wages may prove inadequate,

whilst an immoderate reduction might shatter confidence even if it were practicable" (GT, pp. 266–267).

Moreover, while a flexible wage policy and a flexible monetary policy might be the same thing analytically, in practice they are very different: the flexible wage policy being much more difficult to implement (GT, p. 207). In the real world, far from rigidity of money wages being the cause of equilibrium with involuntary unemployment, Keynes found that flexible nominal wages were deleterious, possibly even reducing output and certainly causing "great instability in prices" (GT, p. 269). Keynes concluded that "the money-wage level as a whole should be maintained as stable as possible, at least in the short period" (GT, p. 270).

Keynes' simplest model<sup>3</sup> was one in which the rate of interest is exogenous (to put it succinctly in modern terms).

"Our independent variables are in the first instance, the propensity to consume, the schedule of the marginal efficiency of capital and the rate of interest, though as we have already seen, these are capable of further analysis" (GT, 245).

With the rate of interest and the marginal efficiency of capital schedule determined, planned investment is also determined. Equilibrium occurs when there is no unintended investment or disinvestment in inventories. Keynes thought that unintended investment, or disinvestment in inventories would normally be a very temporary phenomenon (GT, pp. 124–5) and often defined his period as long enough for actual investment to be equal to planned investment. This simple model of Keynes sounds very like the 45 degree diagram, and with the axes suitably labelled, the 45 degree model can be a genuine representation of Keynes' simple model<sup>4</sup> rather than the special variant of IS-LM which occurs when the rate of interest is exogenous and the quantity of money endogenous rather than vice versa.

The assumption of an endogenous money supply implied in this simple first model of Keynes is often more realistic in the modern world than the opposite assumption, of an endogenous interest rate and an exogenous money supply, that is widely made in modern textbooks. Whenever a small country fixes its exchange rate by tying its currency to that of a large economy, the interest rate in the small country will be determined exogenously by the interest rate in the large country. More generally whenever a country targets its exchange rate, the rate of interest will have to be used as an instrument and the money supply will become largely endogenous.

This is not the only situation in which, in effect, the rate of interest is exogenous. This also occurs when the famous, or infamous, low level liquidity trap is operating, i.e., when the rate of interest has fallen so far "that almost everyone prefers cash to holding a debt which yields so low a rate of interest" (GT, p. 207) and there is no speculative motive to hold bonds since it is widely believed that the interest rate can hardly fall any further. Keynes himself



thought that, even in his era of low interest rates, the low level liquidity trap rarely, if ever, came into play. The use of the rate of interest as the instrument of government policy, for exchange rate or other reasons, is the more likely reason for an exogenous interest rate. Be that as it may, it is clear that Keynes' simple model can be more than an expository device. It can be a useful model for analysing real world problems in common situations in the modern world.

However, Keynes did not dwell on this simple model. It was adopted only in the first instance. As the title of his book implies the main model in the *General Theory* is one in which the rate of interest is endogenous, determined by liquidity preference and the money supply. In this model the independent variables are

“(1) The three fundamental psychological factors, namely, the psychological propensity to consume, the psychological attitude to liquidity and the psychological expectation of future yield from capital-assets; (2) the wage-unit as determined by the bargains reached between employers and employed; and (3) the quantity of money as determined by the action of the central bank” (GT, pp. 246–247).

This model seems, at first glance, very like IS-LM. The same variables are endogenous and the same or similar exogenous variables are important. However, as we shall see there is a subtle difference. IS-LM is an equilibrium analysis in which everything is determined simultaneously. Keynes' theorising highlights the fact that production takes place over time and that fixed investment and production decisions made at the beginning of the period cannot be changed until the beginning of the next period. There can be unintended inventory investment and disinvestment, though, as already pointed out Keynes usually thought of the period as long enough for inventory investment to be at the level planned at the beginning of the period. As far as the short period is concerned (fixed) investment is predetermined and is not affected by what happens during the period. This could be because firms cannot change expenditure on fixed investment quickly; but more likely it is because in Keynes' mind the marginal efficiency of capital was constant in the short run and finance was arranged, through borrowing, at the beginning of each period at the rate of interest prevailing at that time (i.e., the rate determined by conditions in the previous period and ruling at the end of that period). Keynes did not think in terms of simultaneous determination of the dependent variables. For him it was a process and the process was as follows (GT, pp. 248–9). Start with an assumed marginal efficiency of capital schedule and a predetermined rate of interest. These determine investment and, given investment, consumption is also determined, through the multiplier, determining aggregate demand. This, in conjunction with aggregate supply, determines employment, output, price and income for the period. If there is unintended inventory investment this

leads to downward revision of expectations and a lower income in the next period (and vice versa for unintended inventory disinvestment). However, Keynes usually thought of the period as long enough for desired investment, and consumption, to be equal to actual investment and consumption. Once income is determined, given the stock of money and the liquidity preference function this will determine the rate of interest. If this is the same as the rate of interest at the end of the previous period the economy is in equilibrium. If the rate of interest is higher than this, in the next period investment and income will be lower leading to a fall in the interest rate and vice versa when the rate of interest is lower at the end of the period than at the beginning. There could be oscillations, but the system quickly converges to the equilibrium position in which the rate of interest, investment and income are constant from one period to the next.<sup>5</sup>

Keynes did not argue that the volume of employment was necessarily stable. On the contrary he stressed the volatility of the exogenous variables that determined the level of employment

“there is not one of ... [these] factors which is not liable to change without much warning, and sometimes substantially” (GT, p. 249).

In particular, Keynes thought that the marginal efficiency of capital could change dramatically, causing changes throughout the economy. Much of Chapter 22 of the *General Theory* is about the consequences of this. However, Keynes was concerned to demonstrate that a stable continuing position with substantial unemployment is possible. Above all Keynes considered that he had shown that the level of employment was determined by effective demand, not by equating the marginal disutility of labour with the real wage and that there was no tendency for the economy to move towards full employment:

“the volume of employment is given by the point of intersection between the aggregate demand function and the aggregate supply function ... the point ... called *the effective demand* ... this is the substance of the *General Theory of Employment*” (GT, p. 25, emphasis in the original).

### 4.3 Keynes' Reaction to IS-LM in 1936 and 1937

In the light of the previous section it is not difficult to understand why Keynes gave cautious approval to Hicks' original paper with the words

“I found it very interesting and really have next to nothing to say by way of criticism” (1973b, p. 79).

To Keynes, Hicks' apparatus must have seemed to possess the supreme virtue of showing output and hence employment to be determined by effective

demand. Although the graphical presentation makes clear that Hicks is presenting a system of simultaneous equations and not analyzing a process, the consequences of this are not emphasized. Keynes' one real criticism of Hicks in his letter<sup>6</sup> is when Hicks is carried away by the simultaneous equation nature of his model and, prompted by "mathematical elegance", considers including current income as a determinant of the marginal efficiency of capital (1982, p. 111). In the event this feature did not survive the transition of IS-LM into the textbooks, but the importance of effective demand did, at least until the 1980s.

At the same conference at which Hicks' 1937 paper was delivered, Harrod also gave a paper on Keynes and the classical economists. Keynes was very much more enthusiastic about Harrod's paper describing it as "instructive and illuminating" (1973b, p. 84) and "extraordinarily good" (1973b, p. 85). The mathematical equations in Harrod's interpretation of the *General Theory* are precisely those which underlie the IS and LM curves. Why then was Keynes so much more enthusiastic about Harrod's paper than about that of Hicks? If we can answer this question it may give us insights into what Keynes would have thought of how IS-LM developed in the years after his death.

Hicks put forward three equations as the essence of the *General Theory* (1937, p. 153). However, since investment and saving are identically equal he uses the same symbol for both. It is easier to follow what he is doing if we give each its own symbol and add the equation saving equals investment. If this is done, and modern notation is used, Hicks' equations are:

$$\begin{aligned} I &= f_1(i) \\ S &= f_2(Y) \\ M &= f_3(i, Y) \\ I &= S \end{aligned}$$

The first is that investment is a function of the rate of interest, the second is the consumption function and the third is the liquidity preference function.

Harrod's model also had three equations and used the same symbol for saving and investment (1937, pp. 76–78). Again in modern notation his equations are:

$$\begin{aligned} i &= f_a(I) \\ Y &= f_b(I, i) \text{ but with the statement that Keynes usually simplified this} \\ &\text{to } Y = f_c(I) \\ i &= f_d(M, Y) \\ S &= I \end{aligned}$$

Harrod uses the same symbol for the rate of interest and the marginal productivity (or efficiency) of capital “since both the traditional theory and Mr Keynes hold that investment is undertaken up to the point at which the marginal productivity of capital is equal to the rate of interest” (1937, p. 76). Thus, his first equation, that the marginal productivity of capital depends on the level of investment, is Hicks’ first equation transposed. Similarly, (given  $S = I$ ) his second equation in its simple form and his third equation can be obtained by transposing Hicks’ second and third equations respectively. Thus, Keynes’ much greater enthusiasm for Harrod’s paper must be in the way the equations are presented and/or the discussion of them.

There are a number of notable differences in this respect. First, Hicks’ exposition of IS-LM reads like the exposition of a small Walrasian general equilibrium model. It was certainly taken that way by the economics profession and Hicks himself stated later that “the idea of the IS-LM diagram came to me as a result of the work I had been doing on three-way exchange, conceived in a Walrasian manner” (1982, p. 32). Harrod, on the other hand, made very clear that he regarded Keynes’ theory as a particular equilibrium model, a “short-cut” method that kept changes in a number of things out of consideration, at last temporarily, through the *ceteris paribus* assumption (1937, p. 75).

Secondly, the presentation of Harrod’s first equation as one for the marginal productivity (or efficiency) of capital led naturally to the point that for Keynes this was a psychological not a physical variable. Harrod noted (in two separate places) Keynes’ emphasis that the value of the marginal productivity of capital depended on expectations. He commended this saying that it “constitutes a great improvement in the definition of marginal productivity” (1937, p. 77). While expectations of future returns can underlie Hicks’ IS curve, this is not explicit and in fact Hicks had no discussion of any difference between Keynes’ theory of investment and that of the classics.

Thirdly, Hicks focused attention on liquidity preference as the important difference between Keynes and the classics and stated that the equation embodying the consumption function and the multiplier “is a mere simplification and ultimately insignificant” (1937, p. 152). Harrod, on the other hand, states that

“the most important single point in Mr Keynes’ analysis is that it is illegitimate to assume that the level of income in the community is independent of the amount of investment decided upon” (1937, p. 76).

A fourth difference lay in the treatment of the determination of prices. Hicks explicitly assumed a constant nominal wage rate and implicitly assumed that prices were determined by a mark-up on wages so that there was also a constant price level (1982, p. 323). Harrod had a long discussion of the

matter, but concluded that (in Keynes' theory) nominal wages and the level of activity determined the money cost of production and that this in turn determined prices through marginal cost pricing "with suitable modifications for imperfect competition" (1937, p. 82).

This difference in the way prices are determined means that aggregate supply had a role to play in Harrod's model, whereas it is virtually absent in Hicks' model. If, for ease of exposition, we clothe Harrod's ideas in modern concept and terminology, we can say that since Harrod assumed a quantity of money fixed in nominal terms, the higher the price level associated with any given level of real output, the higher the rate of interest. Harrod assumed that because of declining productivity and an increasing proportion of wages paid at overtime rates the general price level rose as the level of real output increased. In other words the aggregate supply schedule showed the price level rising as real output rose. Hence a higher level of output was associated with a higher interest rate, not only because of the shape of the liquidity preference function, but also because the quantity of money declined in real terms as output rose.

Given the marginal efficiency of capital schedule and the marginal propensity to consume, aggregate demand was given by the rate of interest. Equilibrium was reached when output is such that both the output and the resulting price level are consistent with the rate of interest which makes aggregate demand equal to that level of output. In Harrod's own words "the mutual interdependence of the whole system remains" (1937, p. 83). In short, in Harrod the aggregate supply schedule played a significant role, whereas in Hicks it has all but disappeared since in Hicks' model the aggregate supply curve is horizontal (in price output space) at the exogenously determined price level.

While Keynes may not have consciously thought through the matter, each of these four differences probably partly explains the difference in his response to Harrod's paper as opposed to that of Hicks. Thus, a comparison of the papers of Hicks and Harrod has suggested four points to look for in considering what Keynes would have thought of the development of IS-LM. These are the use of general equilibrium analysis, the relative neglect of expectations, the importance of liquidity preference as opposed to the multiplier and the role played by aggregate supply. The marked difference in the degree of Keynes' enthusiasm for the two papers suggests that at least some of these four points must have been important to Keynes. In fact passages can be found in the *General Theory* that suggest Keynes, on reflection, would not be comfortable with any of these four aspects of Hicks' exposition. As we shall see in the next section the development of IS-LM in the 1950s and 1960s emphasized three of the four points, but did not place the importance on liquidity preference, compared to the multiplier, that Hicks had done in 1937.

Before leaving Keynes' reaction to Harrod's paper one further point should be made. In his letter to Harrod, in commenting on things Harrod had left out, but which he himself would like to include, Keynes said

"You don't mention *effective demand* or, more precisely, the demand schedule for output as a whole, except in so far as it is implicit in the multiplier. To me, the most extraordinary thing, regarded historically, is the complete disappearance of the theory of demand and supply for output as a whole" (1973b, emphasis in the original p. 85).

That Keynes thought aggregate demand important is now a platitude. This quotation suggests that he also thought aggregate supply was far too important to be neglected.

#### 4.4 Keynes and the Development of IS-LM in the 1950s and 1960s

In the 1950s and 1960s IS-LM was triumphant, both as an interpretation of what Keynes was saying in the *General Theory* and as the essential core of macroeconomics. It was correctly described, both in articles in professional journals and in textbooks, as a system of simultaneous equations whose solution gave the conditions necessary for an equilibrium situation. Those who actually read the *General Theory* recognised that Keynes had not presented a simultaneous equation system, but were more inclined to blame Keynes for not understanding the implications of what he was saying, than to acknowledge that, whatever the merits of IS-LM, it was not an accurate representation of Keynes' theory. For example, in a paper published in the *American Economic Review* to mark the 25th anniversary of the *General Theory*, Harry Johnson complained about

"Keynes's clumsy and misleading way of presenting what is essentially a general equilibrium model as a system of unidirectional causation. I refer to the order of analysis of the *General Theory*, in which income is defined as the sum of consumption and investment; consumption is determined by investment through the multiplier; investment is determined by the marginal efficiency of capital and the rate of interest; and the rate of interest is determined by liquidity preference and the quantity of money; but at the very last stage of the argument the level of income re-enters as a determinant of liquidity preference, so that the apparently simple line of causation from the demand for and supply of money to the interest rate to investment to consumption to income vanishes completely" (1961, p. 4).

Johnson was so imbued with the general equilibrium approach to economics that he did not realize that Keynes had a system of uni-directional

causation in substance, as well as in the way it was presented, and that this can be suitably represented by a recursive system, as was done earlier in this paper. This despite the fact that Wold (1954) had shown some years before that recursive systems can produce equilibrium situations just as much as simultaneous equation systems do.

However, the point here is not which is the best way to represent Keynes' theory, but that in the 1950s and 1960s a simultaneous general equilibrium system was taken to represent Keynes' theory of employment and output. It is useful to reinforce that point by quoting from a typical textbook since well regarded textbooks can be taken as presenting the conventional wisdom more surely than an original article, no matter how eminent the author. Ackley's *Macroeconomic Theory* has been selected as probably the most successful macro text book of the 1960s. In his presentation of IS-LM Ackley makes it clear that it is a system of simultaneous equations that gives the conditions necessary for equilibrium. He states

“Clearly at  $r_0, y_0$  [the point of intersection of the IS and LM curves] both equilibrium conditions are satisfied: that saving equal investment and that the supply equal the demand for money. Any point on the line IS satisfies the first of these; any point on the line LM, the second; but only their intersection satisfied both conditions” (1961, p. 370).

From the point of view of the economics of the *General Theory*, general equilibrium models have two problems. One is that they set out conditions necessary for equilibrium and hence say nothing about causation, about where the economy will be in the real world or what will be the likely effects of a specific change in policy at some actual point in time. Secondly the treatment of exogenous variables in general equilibrium analysis is completely incompatible with Keynes' approach.

We have already alluded to the first problem in our discussion of Keynes' theory of employment and output, but some elaboration is necessary. The emphasis in the use of the term equilibrium is different in general equilibrium theory to that in the *General Theory*. General equilibrium theorists tend to regard equilibrium as a situation in which all the actors plans are consistent so that no one's expectations are incorrect. Keynes thought short period expectations were usually largely correct, at least as far as output and employment were concerned. He spoke of unintended inventory investment or disinvestment as only momentary (1973b, pp. 71–72). He thought that long-period expectations were volatile. Hence, by the time that one knew whether or not they had proved to be correct it was probably irrelevant as they had changed in any case. He was just not interested in equilibrium as consistency of plans and fulfilment of expectations. For him the essence of an equilibrium situation was that it persisted and, in particular, of course, he was concerned about the persistence of unemployment.

This difference between Keynes and general equilibrium theory is not just a philosophical point, it is a very practical one. IS-LM analysis can inform policy makers about the characteristics of a desired equilibrium situation, but there is nothing in it to tell them how to get there if the economy is not at that equilibrium situation. There was not in the 1950s and 1960s even much discussion of whether the equilibrium was stable, that is whether, if the economy reached it by chance or design, it was likely to stay there. In fact at the end of this era, Chang and Smyth (1972) show that the intersection of the IS and LM curves may not be a stable equilibrium position even with the plausible assumptions that “income changes at a rate proportional to excess demand in the goods market and ... the rate of interest changes at a rate proportional to excess demand in the money market” (p. 372).

The basic problem is that general equilibrium models impart no information about an economy which is not in equilibrium. Of course, textbooks told “stories” about what happened when an exogenous variable changed throwing the economy out of equilibrium. However, the better ones were uneasy about this realizing that such “stories” are not, strictly speaking, supported by the theory that they have just expounded. For example, after tracing through the effects of a rise in the propensity to consume Ackley cautions

“we tread perilously close to misleading statements in the foregoing, as well as being forced to bring dynamic considerations into what is supposed to be static analysis” (1961, p. 372).

Keynes would have summarily rejected this kind of analysis. For him the whole point of theory was as a guide to policy, and especially in this case, policy with respect to employment. While he wanted to show that the economy did not automatically tend to full employment so that policy was necessary, he also wanted to show what policy actions were desirable, what was likely to move the economy from a situation with substantial unemployment to one of full employment. His theory did not aim to elucidate the conditions necessary for equilibrium but what determined the level of unemployment at any point in time. Hence, he would have been very critical of a theory that emphasized the conditions necessary for equilibrium.

Moreover, Keynes would have argued that the sort of presentation in Ackley (and virtually all the other textbooks of the time) was not just perilously close to being misleading, but was downright dangerous as being likely to lead to incorrect policy advice. This relates to the other problem of general equilibrium analysis, the treatment of exogenous variables, and can be neatly illustrated by contrasting Ackley’s conclusions about the effects of an increase in the quantity of money with those of Keynes. Ackley sets out the standard analysis in which an increase in the quantity of money shifts the LM curve to the right. The new point of intersection with an unchanged IS curve is at a lower rate of interest and higher level of output. A summary



of Keynes' analysis of the effects of an increase in the quantity of money is contained in our earlier quotation about the effects of a reduction in money wage rates. To repeat, Keynes thought that

“a moderate increase in the quantity of money may exert an inadequate influence over the long-term rate of interest, whilst an immoderate increase may offset its other advantages by its disturbing effect on confidence” (GT, pp. 266–7).

In other words Keynes thought that an increase in the quantity of money could easily have no effect on output because it could, in IS-LM terms, shift the IS curve as well as the LM curve. This reflects the difference between an exogenous variable and one that for the time being is included in the *ceteris parabus* assumption. The very name exogenous implies that such variables are outside the system, and their values can be changed at will in hypothetical cases to give useful insights into an actual economy. Variables under the *ceteris parabus* assumption are assumed constant for the purpose in hand. It is not assumed that their values can be changed at will. In discussing the demand curve for an individual commodity, say soap, it is often assumed that money income and the prices of all other commodities are held constant. This does not mean that it is useful to consider the effects of a large increase in money income on the demand for soap while keeping the assumption that the prices of all other commodities remain constant.

This difference between his way of thinking and the general equilibrium approach of IS-LM was particularly important to Keynes, because he considered that there was one set of variables, assumed constant under the *ceteris parabus* assumption, whose values were likely to change if there were changes in the values of other variables assumed to be constant. This set was of course long-period expectations. Keynes' discussion of the effects of a change in the quantity of money is an excellent example of the point. Keynes' emphasis on the key role of long-period expectations was not part of his formal model but was a large part of the discussion in the *General Theory*. His emphasis is reflected in the complaint of some of his followers, most notably Joan Robinson, that IS-LM neglects time. In a formal sense time has a large role in IS-LM. The past is important as the determinant of the capital stock, the state of technology and other factors. The future is important since expectations determine both the marginal efficiency of capital and liquidity preference. However, in IS-LM both the past and expectations about the future are outside the model and cannot be changed. For the past this is entirely appropriate, but at least in Keynes' view it is not appropriate for long-period expectations. His stress on considering the way things may affect long-period expectations would have made him critical of the way IS-LM was used in the 1950s and 1960s.

Hicks' view that liquidity preference was more important than the multiplier as a distinguishing mark of Keynesian economics is not reflected in the way IS-LM was used in the 1950s and 1960s, but his emphasis on aggregate demand rather than aggregate supply is. Indeed the assumption of a constant wage rate and mark up pricing, together with the implicit assumption of no rationing, make it impossible for aggregate supply to play a role in IS-LM since the aggregate supply curve, drawn in price and outlet space, is horizontal at the exogenous price level. Keynes, in his letter to Harrod already quoted and elsewhere, maintained that he thought aggregate supply was important. Despite this there is little discussion of it in the *General Theory*. This may be because Keynes thought his aggregate demand function was a new concept which needed a great deal of discussion whereas his aggregate supply function was "only a concoction of our friend the supply function" (1973a, p. 513). It may also be that Keynes thought that the interesting things affecting aggregate supply were the state of technology and the capital stock which were already determined, could not be changed in the short period, and certainly should not be changed by policy in a way that would reduce employment in the short period. In any case it is likely he would have been disappointed that the use of IS-LM in the 1950s and 1960s ignored the supply side completely, especially since in that period supply side issues were becoming increasingly important compared to those on the demand side.

After a relatively lengthy discussion of the aspects of IS-LM, as used in the 1950s and 1960s, which Keynes would have criticized, it is necessary to point out that, nevertheless, there were two features that Keynes would have found appealing. The first we have already alluded to, it is the clear-cut position that it is effective demand that determines the level of employment, not the balancing, at the margin, of the utility of wages against the disutility of work. Since we have already emphasized the importance Keynes gave to effective demand no more need be said on this point.

The second is that IS-LM was used in the 1950s and 1960s in a way that stressed the effects of changes in the quantity of money on the real economy. As Keynes pointed out, in the letter to Hicks already quoted, a strict classical economist would not admit that a change in the quantity of money could have any effect on the level of employment or any other real variable. Keynes was keen to stress that it could. He stressed that the rate of interest was a monetary phenomenon (GT. Chap. 13. 1973b, p. 80) and was proud to have reunited monetary theory with the rest of economic theory. He would surely have welcomed support for this in IS-LM.

#### **4.5 Keynes and the Development of IS-LM in the 1980s and 1990s**

Both these virtues that Keynes would have found in the way IS-LM was used in the 1950s and 1960s largely disappeared in the way it was used in the

1980s and 1990s. Modern macroeconomics re-emphasized aggregate supply as well as aggregate demand, though it was a very different aggregate supply and demand analysis to that of Keynes. However, the majority of macroeconomists, both “neo-classical” and “neo-Keynesian”, use IS-LM as the basis of constructing an aggregate demand curve. The aggregate supply and aggregate demand curves are drawn on a graph with real output on the x axis and the general price level on the y axis. A fixed nominal supply of money is used so that for each price level there is a different real stock of money and a different LM curve. The aggregate demand curve plots the resulting equilibrium level of real output and income corresponding to each price level and its related LM curve. In the words of the very careful definition in one textbook, the aggregate demand curve

“shows all the possible crossing points of a single IS commodity market equilibrium curve with all the various LM money market equilibrium curves drawn for each possible price level. Everywhere along the curve *both* the commodity and money markets are in equilibrium”. (Gordon (1990, p. 159). Emphasis in the original).

We have already argued in the previous section that Keynes would have been critical of any analysis that assumes one can vary the value of one exogenous variable without considering the possible effects on other variables assumed to be held constant. Although the general price level is an endogenous variable in modern aggregate demand and supply analysis a similar argument applies. Whether the general price level is high or low may affect the values of variables assumed to be exogenous in the IS-LM analysis underlying the aggregate demand function. This is particularly likely in the case of the marginal efficiency of capital. Since last period’s price is predetermined, each different price level represents a different rate of inflation. Keynes would have been very critical of a theory which maintained that the marginal efficiency of capital schedule does not change as the rate of inflation changes.

Secondly, Keynes would probably have stuck by his view that the concept of the general price level was too imprecise a measure to be of use in economic analysis. In the *General Theory* he commented that

“to say that net output today is greater, but the price level is lower, than ten years ago or one year ago, is a proposition of a similar character to the statement that Queen Victoria was a better queen but not a happier woman than Queen Elizabeth—a proposition not without meaning and not without interest, but unsuitable as material for the differential calculus. Our precision will be mock precision if we try to use such partly vague and non-quantitative concepts as the basis of a quantitative analysis” (GT, p. 40).

However, both these and the problems noted in the previous section that Keynes would have had with IS-LM, pale into insignificance compared to the fact that in modern aggregate demand and supply analysis, IS-LM is part of a theory which produces conclusions diametrically opposed to those of the *General Theory*. Not surprisingly this is most stark in the neo-classical version.

Again it is helpful to use a well regarded textbook to demonstrate the model in which IS-LM is used. Parkin and Bade (1988) combine an aggregate demand curve based on IS-LM, as described above, with a very classical (or neoclassical in modern terms) supply curve. In much of the analysis of the book the supply curve is drawn as vertical at the level of income corresponding to full employment output. Parkin and Bade think that this is the correct shape, both in the long run when, by definition, price expectations are correct, and also when any changes in prices are fully anticipated so that price expectations are correct in the short run. It is assumed that both the product market and the labor market are markets with flexible prices and that nominal wages will adjust to any price level so that the demand and supply of labor are equal. "If the price level doubled then the money wage would also have to double to preserve labor market equilibrium" (p. 309). Output is determined solely by aggregate supply, as it is always at the level that obtains when there is equilibrium in the labor market, defined as occurring when the real wage rate is equal to the marginal disutility of work. Aggregate demand does not influence output (except possibly in the short run due to mistaken expectations) but is left to determine the price level and hence nominal wages.

Keynes would have completely rejected this as akin to the mistaken theories he was combating in the *General Theory*, only even less defensible. Not only does demand have no effect on the level of output, but the quantity of money also has little effect on the real economy.<sup>7</sup> The supply of money does affect aggregate demand and hence the price level. Not only would Keynes have rejected this outright, but he surely would have lambasted a theory in which the aggregate demand curve, based on IS-LM, assumes a fixed nominal wage rate, but is combined with an aggregate supply curve which assumes that the nominal wage rate is perfectly flexible.

Parkin and Bade do allow for a case in which, due to mistaken price expectations on the part of employees, the aggregate supply curve is not vertical. Hence aggregate demand can have some influence on the level of output, though the resulting equilibrium is temporary and can only last one period since by the end of the period the actual price level is known and the mistake realized.

This case is based on the assumption that, in any firm, employers have a good knowledge of their costs and the price of the firm's output, but employees often do not have a good knowledge of the price of wage goods in general. Hence, employees must make decisions on the basis of an expected

real wage. It is assumed that both employers and employees know the money wage, so for employees the expected real wage is this money wage deflated by the expected price level. If employees expect a lower level of prices than actually occurs they will work for a lower actual real wage and employment and output will be higher than in the case when their expectations are correct. This last part follows because employers know both the money wage, their costs and the price of their product so that “the aggregate demand for labor depends on the *actual* economy-average real wage” (Parkin and Bade, 1984, p. 327, emphasis in the original). The result is an upward sloping supply curve with output increasing as prices increase, as long as prices expected by employees are held constant which can only be the case for one period at a time.

Keynes would have rejected this just as vehemently as he would the case of the vertical aggregate supply curve. Output is still determined by the level at which the marginal disutility of work is equal to the expected real wage. The aggregate demand curve is still based on IS-LM which assumes that the nominal wage rate, the price level and hence the real wage rate are exogenous whereas the aggregate supply curve is based on a labor market with perfectly flexible wage rates. The glaring logical inconsistency still remains.

Although the neo-Keynesian aggregate supply curve is closer to the economics of the *General Theory*, Keynes would also have rejected the way it is combined with the same aggregate demand curve, based on IS-LM, to determine output and the general price level. The very successful textbook by Dornbusch and Fischer (1987) will be used to provide an example of neo-Keynesian aggregate demand and supply analysis. Dornbusch and Fischer use the Phillips curve as the basis for the aggregate supply curve. They transform it from a relationship between employment and wage rates to one between output and prices by the use of a production function and the assumption of mark-up pricing. The resulting function, which is still about changes in output and prices, is then changed to a supply curve by transferring last periods’ price to the right hand side of the equation where it joins last periods’ output as a predetermined variable (1987, pp. 477–480). In this model, in short period equilibrium real output and the general price level are determined jointly by aggregate demand and supply, but given the assumptions made about the quantity of money there is a strong tendency for real output to move to the full employment level which is defined as occurring when the rate of unemployment is consistent with a non-accelerating inflation rate.<sup>8</sup>

Keynes would have been critical of the way IS-LM is used in the aggregate demand curve for the same reasons as he would have been in the neo-classical case. There is no difference between the neo-Keynesians and the neo-classical economists in their use of IS-LM. Moreover, Keynes would have been dismayed that an analysis called Keynesian argued that the economy automatically returned to full employment.

## 4.6 Concluding Remarks

This paper has suggested a number of reasons why Keynes would have been critical of the way IS-LM developed in the half century after his death. Three stand out as the most significant. The first is the use of IS-LM in an analysis which argues that there is a strong tendency for an economy to return to full employment, especially since this type of analysis became dominant in the 1980s, the decade in which mass unemployment became a problem in most OECD countries.

The second is the neglect of aggregate supply in IS-LM which led to its neglect in “Keynesian” economics generally in the 1950s and 1960s. Given the relative lack of discussion of aggregate supply in the *General Theory* this neglect is understandable. Keynes thought that he had little that was novel to say about aggregate supply, but he insisted that consideration of aggregate supply was important. If he had lived and kept at least some focus on aggregate supply in the 1950s and 1960s the discrediting of “Keynesian” economics, following stagflation in the 1970s, might not have occurred.

The third very significant difference between Keynes’ approach and that of IS-LM is the way time enters (or does not enter) into IS-LM analysis and includes both the representation of Keynes’ sequential analysis as a simultaneous equation system, and the neglect, in practice at least, of long-period expectations. Keynes’ formal model was not fully dynamic, but it did go further than comparative statics and lead easily into discussion of dynamic problems. Keynes though these important. The *General Theory*, he said, “has evolved into what is primarily a study of the forces which determine changes in the scale of output and employment as a whole” (GT, p. vii) and he commented favourably on the hints about a future dynamic theory at the end of Harrod’s *Econometrica* paper (1973b, p. 84).

Underlying this is the pervasive difference between Keynes’ particular equilibrium, recursive method and the general equilibrium method of IS-LM. Although he rejected the Cambridge School’s use of Say’s law and the quantity theory of money, Keynes’ way of doing economics was fundamentally Marshallian. IS-LM is not. Like most modern economic theory it is fundamentally Walrasian. As Friedman said of modern economic theory “We curtsy to Marshall, but we walk with Walras” (1953, p. 89). But, as Friedman also pointed out, Keynes himself (as opposed to Keynesians) is an exception to this description (1953, p. 92).

## Notes

The author would like to thank Peter Kriesler and John Lodewijks for commenting on a draft. The usual caveat applies.

1. Page references preceded by GT are to any Macmillan edition of the *General Theory*.

2. In his chapter "Notes on the Trade Cycle" this short-period assumption was necessarily relaxed, as it was in discussion at other points in the *General Theory*. But the "Notes" and discussion remained just that and did not set out a formal model.
3. For a summary of this discussion see Addison and Barton (1982).
4. This is the case if output is measured on the  $x$  axis and expected deflated proceeds on the  $y$  axis.
5. Particularly since Keynes thought that the rate of interest at the end of a period was unlikely to be so different from that holding at the beginning that a large change in investment occurred in the following period (GT, p. 250).
6. To be more exact, it was his one real criticism of Hicks' exposition of Keynes' theory. Keynes also criticises Hicks' version of classical economics as not being true to the genuine classical theory, but only to a slovenly modern version.
7. It can affect the composition of output through its influence on the nominal interest rate.
8. This is a very brief summary which does less than justice to Dornbusch and Fischer. For a detailed discussion see Neville and Rao (forthcoming).

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# 5

## *IS-LM* and Macroeconomics after Keynes

*Peter Kriesler and J. W. Neville*

### 5.1 Introduction

This paper reflects Victoria Chick's deeply held belief 'that the macroeconomics which has followed the *General Theory* in time has not followed it in spirit' (1983: v). This type of complaint is widespread in post-Keynesian literature and centres on the simultaneous equation equilibrium nature of the 'Keynesian' part of the neoclassical synthesis.

For in a world that is always in equilibrium there is no difference between the future and the past and there is no need for Keynes.

(Robinson 1974: 128)

The authors of the present chapter share the view that Walrasian simultaneous general equilibrium macroeconomic models are not macroeconomics 'after Keynes' and are more often misleading than helpful. Many, e.g. Pasinetti (1974), have laid the blame on the *IS-LM* model set out in Hicks's 1937 article, for the divergence of orthodox 'Keynesian' macroeconomics from the economics of the *General Theory*. Recently Ingo Barends (1999) has put an alternative view, arguing that, despite what may have happened later, the model in 'Mr Keynes and the "Classics"' was a valid representation of the model summarized in chapter 18 of the *General Theory*. In the present chapter we discuss this issue and also the wider question of whether *IS-LM* analysis has any role to play in macroeconomics in the spirit of Keynes. To help answer the latter question we look at what Chick herself has said about *IS-LM*.

In Section 2 we attempt to identify the 'essence' of Keynes's central message and in Section 3 examine Keynes's reaction to various formulations of the *IS-LM* to see what he thought important if an *IS-LM* framework was

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Revised from *Money, Macroeconomics and Keynes: Essays in Honour of Victoria Chick*, 1: 103–114, 2002, 'IS-LM and Macroeconomics after Keynes', by Kriesler, P. and Neville, J. W. With kind permission from Taylor and Francis LLC. All rights reserved.



to be a good summary of the *General Theory*. We then consider whether Hicks's IS-LM framework was an important step in the eventual distortion of Keynes's message. Finally, we use the work of Chick to consider the degree to which the IS-LM framework can yield insights into actual economies.

## 5.2 What is Macroeconomics after Keynes?

The *General Theory* was written as a 'long struggle of escape' from what Keynes called 'classical economics' (1936a: viii). Like the first expression of many radical innovations in economic theory it was not a lucid consistent whole. This has given rise to many interpretations about Keynes's essential message. Nevertheless, there are some things that so permeate the *General Theory* that all agree that they are essential components of macroeconomics done in the spirit of Keynes. There are three we would pick out as the most important. The first is Keynes's central message that in a capitalist economy employment, and hence unemployment, is determined by effective demand and that there is no mechanism which automatically moves the economy towards a position in which there is no involuntary unemployment. The second is Keynes's emphasis that, since production takes time and many capital goods have long lives, decisions about production and investment are made on the basis of expectations. Moreover, given the nature of our knowledge of 'future' events, sometimes called 'fundamental uncertainty', these expectations cannot be rational in the sense of the modern phrase 'rational expectations'. Third, in the *General Theory* money is not a veil; monetary variables influence real variables such as output and employment, and real variables, in turn, influence monetary ones.

We consider a fourth characteristic is also very important, namely Keynes's understanding of the concept of equilibrium and the role of equilibrium analysis in the *General Theory*. However, many who call themselves Keynesian would disagree with us on this and our view is stated and supported in the following paragraphs.

Keynes claimed to have shown 'what determines the volume of employment at any time' (1936a: 313), i.e. in both equilibrium and disequilibrium situations. This claim highlights the difference between the *General Theory* and the Walrasian general equilibrium models used in the neoclassical synthesis. These general equilibrium models provide information about the necessary and sufficient conditions which must be fulfilled if an economy is to be in equilibrium. They can be used in comparative static analysis, but they can provide no information about an economy, which is not in equilibrium. This is the nub of Joan Robinson's complaint about equilibrium models.<sup>1</sup> It is possible to put the point slightly differently by noting the lack of causality in simultaneous equation models. When everything is determined simultaneously, it is not possible to argue that variable 'a' causes variable 'b'. On the other hand the *General Theory* is full of statements about causation, e.g. 'the propensity to consume and the rate of new investment

determine between them the volume of employment' (p. 30). Keynes was concerned to show that it was possible for an economy to be in equilibrium with involuntary unemployment, but he argued in terms of a causal process in which the economy moved to an equilibrium situation.<sup>2</sup>

Keynes was, of course, a good enough mathematician to realize that the equilibrium position reached could be described by a system of simultaneous equations,<sup>3</sup> but showed little interest in doing this. He was more interested in determining the level of output and employment at any time whether or not the economy was in equilibrium. Indeed in the preface to the *General Theory* he states that it 'has evolved into what is primarily a study of the forces which determine changes in the scale of output and employment as a whole' (1936a: vii). This emphasis on an evolving interest in changes suggests a declining concern with equilibrium. It is interesting that chapter 18 in the published version of the *General Theory* was entitled 'The Equilibrium of the Economic System' in drafts, but 'The General Theory of Employment Re-Stated' in the published book (1973: 502).

Moreover, a Marshallian particular equilibrium approach distinguishes Keynes's approach from neoclassical general equilibrium analysis.<sup>4</sup> The latter treats all variables not determined by the model as exogenous and one can be changed without affecting the others. On the other hand, Marshallian particular equilibrium analysis proceeds on the basis that the values of a set of particular variables can be assumed to be constant, or approximately constant, for the purpose in hand, locked 'for the time being in a pound called *ceteris paribus*' (Marshall 1920: 366). In many places in the *General Theory* Keynes showed that he thought of variables not determined by the model as being in Marshall's pound. The significance of this will be discussed in a later section.

### 5.3 Keynes's Reaction to IS-LM

Keynes's lukewarm reaction to Hicks's original paper is too well known to quote. What is less well known is Keynes's enthusiastic reaction to a paper Harrod gave at the same conference at which Hicks's paper was delivered.<sup>5</sup> He described it as 'instructive and illuminating' (1936c [1973]: 84) in a letter to Harrod and 'extraordinarily good' (1936d [1973]: 88) in one to Robertson. The mathematical equations Harrod gives as a summary of his interpretation of the *General Theory* are formally the same as those Hicks uses to produce his IS-LM diagram for the Keynesian theory. However, differences between the way the equations are presented and the discussion of them by the two authors may give insights into whether, and if so how, Hicks's article diverted Keynesian economics from the direction in which Keynes tried to head it in the *General Theory*.

The equation linking investment and the rate of interest is a good example of this. Harrod uses the same symbol for the rate of interest and the marginal productivity of capital<sup>6</sup> 'since both the traditional theory and Mr Keynes hold that investment is undertaken up to the point at which the

marginal productivity of capital is equal to the rate of interest' (1937: 76). His equation is Hicks's investment equation transposed. Harrod presents this equation as one for the marginal efficiency of capital. This leads naturally to a discussion of what determines the marginal efficiency of capital. Harrod makes the point that

Mr Keynes makes an exhaustive and interesting analysis of this marginal efficiency and demonstrates that its value depends on entrepreneurial expectations. The stress he lays on expectations is sound, and constitutes a great improvement in the definition of marginal productivity.

(1937: 77)

Hicks, on the other hand, presents his equation as a simple statement that the volume of investment depends on the rate of interest and suggested no differences between the way Keynes and the classical economists understood this statement. Emphasis on expectations is one significant difference between Hicks and Harrod.

A second notable difference between the papers of Hicks and Harrod is the method of analysis used. Hicks's exposition of *IS-LM* reads like the exposition of a small Walrasian general equilibrium model. It was certainly taken that way by both neoclassical and post-Keynesian economists. Hicks himself stated later that 'the idea of the *IS-LM* diagram came to me as a result of the work I had been doing on three-way exchange, conceived in a Walrasian manner' (1982: 32). In contrast Harrod considered Keynes's theory as a particular equilibrium model, a 'short-cut' method that kept changes in a number of things out of consideration, for the purpose in hand, through the *ceteris paribus* assumption (1937: 75).

A third difference between Harrod and Hicks lies in what they see as the most important innovation in the *General Theory*. Hicks claimed that liquidity preference is the important difference between Keynes and the classics and stated that the equation embodying the consumption function and the multiplier 'is a mere simplification and ultimately insignificant' (1937: 152). On the other hand, Harrod focuses attention on the multiplier using it as the basis of his claim that

the most important single point in Mr Keynes's analysis is that it is illegitimate to assume that the level of income in the community is independent of the amount of investment decided upon.

(1937: 76)

Another difference is the amount of attention given to the supply side. Hicks had virtually no discussion on this, just making two assumptions. One was that wage rates were constant. In the 1937 article, he assumed that price equalled marginal cost, but this causes difficulties with his diagram, though not the more general form of the model set out in the equations. In later life

Hicks realized this and added an assumption that product prices 'are derived from the wage rate by a markup rule' (1982: 323). In contrast, in Harrod's model the level of activity determined the money cost of production and this in turn determined prices through marginal cost pricing 'with suitable modifications for imperfect competition' (1937: 82). Due to diminishing returns and an increasing proportion of wages paid at overtime rates, the general price level rose as the level of real output increased.

In his review of the *General Theory* published in the *Economic Record* in 1936, Reddaway also had the same equations as Hicks and Harrod. Keynes's comments on this article lay between those on Hicks and those on Harrod. In a letter to Reddaway he said 'I enjoyed your review of my book in the *Economic Record*, and thought it well done.' (1936b [1973]: 70). However, this was the concluding sentence of a long letter in which he had discussed specific points raised by Reddaway, some of which went beyond the discussion in his review. Keynes's comment could be interpreted as just a cordial conclusion to a letter to a former student for whose ability Keynes had a high regard. Nevertheless, it is interesting to see how Reddaway treats the issues that distinguish Harrod's exposition from that of Hicks. Any aspects of Reddaway's discussion which mirror features of Harrod's article that are lacking in Hicks's may point to things that Keynes thought important in the new direction he was trying to point economics.

Reddaway emphasizes expectations even more than Harrod, discussing uncertainty and risk (1936: 32–3). His exposition can be read as consistent with either a Marshallian or Walrasian approach, although he consistently uses the term mutual determination, which does not necessarily imply simultaneous determination (e.g. 1936: 33n, 34, 35). He agrees with Hicks in pointing to liquidity preference as the big innovation (1936: 33) and like Hicks suggests the inclusion of current income in the equation for investment. Unlike Hicks he gives an economic reason for this: the effect of current income on investor confidence (1936: 33n). If there is anything that stands out in Reddaway's review which makes his approach more akin to Harrod's than to Hicks's, it is the extended discussion of expectations or 'the state of confidence'.<sup>7</sup> The lack of any explicit discussion of expectations on Hicks's 1937 article is in stark contrast to the discussion in both Harrod's and Reddaway's articles.

#### 5.4 Was 'Mr Keynes and the Classics' Guilty?

Both the lack of attention paid to expectations and the Walrasian nature of Hicks's 1937 article suggest that the answer should be yes. These two characteristics were major features of the *IS-LM* model which was the dominant form of macroeconomics in the second half of the 1950s and 1960s. Since expectations are exogenous variables, outside the *IS-LM* model, they are usually overlooked. The word expectations does not appear in the index

of perhaps the most successful macro-economic textbook of the 1960s, Ackley's *Macroeconomic Theory*. In the 1950s and 1960s the Walrasian simultaneous equation general equilibrium nature of *IS-LM* was taken for granted and pointed out in the textbooks.<sup>8</sup> This simultaneous equation general equilibrium theory was then used to show the result of a policy change or a change in one of the parameters such as the marginal propensity to consume, although strictly speaking the theory could say nothing about what happened when the economy was thrown out of equilibrium.

The way these two things created macroeconomics that was definitely not in the spirit of Keynes can be neatly illustrated by looking at the way each type of macroeconomics treats an increase in the quantity of money. The textbook analysis is well known. The quantity of money is an exogenous variable, which can be changed without affecting other exogenous variables, and when it is increased output increases. Keynes, however, considered the quantity of money as one thing in Marshall's *ceteris paribus* pound and had no assumption that it could be changed without affecting other variables in that pound. He concluded that an increase in the quantity of money could easily have little effect on output or even a perverse effect.

a moderate increase in the quantity of money may exert an inadequate influence over the long-term rate of interest, whilst an immoderate increase may offset its other advantages by its disturbing effect on confidence.

(1936a: 266–7)

For those pursuing economics in the spirit of Keynes, the typical textbook presentation is likely to lead to incorrect policy advice. Expectations are an important set of variables, assumed constant under the *ceteris paribus* assumption, whose values are likely to change if there are changes in the values of other variables assumed to be constant. They are not in fact exogenous variables unaffected by changes in other exogenous variables. Macroeconomics is important, at least to those working in the spirit of Keynes, as a basis for policy advice which can reliably predict the effect of changes in this or that policy variable. Hicks himself, in his post-Keynesian phase as John Hicks, argued that *IS-LM* could not be used to analyse policy change because of its assumption of constant expectations (1982: 331). In the terminology Hicks used elsewhere 'there is always the problem of the traverse'.

Pasinetti (1974: 47) also accuses Hicks's 1937 article of badly distorting Keynes by elevating liquidity preference to the position of the major theoretical innovation in the *General Theory*. This accusation seems a bit harsh. Hicks's point is essentially that unless  $M = f(Y)$  is replaced by another equation, in Keynes's case by  $M = L(i)$ , the model is still very close to the classical position, e.g. it would provide theoretical underpinning for the 'Treasury View'. Hicks's stress on the importance of liquidity preference does not contradict

the fundamental principle that it is effective demand that determines the level of income.

The meager discussion of the supply side in Hicks's 1937 article and in later *IS-LM* analysis was certainly unfortunate, but it is paralleled by a meager discussion of supply in the *General Theory*. Although more attention to aggregate supply would have enabled macroeconomics to cope better with the supply shocks of the 1970s, and although Keynes thought it important, one can hardly blame Hicks for following the *General Theory* and giving little attention to it in an article designed to elucidate the differences between Mr Keynes and the classics.

Nevertheless, the most important weaknesses in the Keynesian part of the neoclassical synthesis did flow naturally from Hicks's *IS-LM* analysis. The typical post-Keynesian view that Hicks's 1937 article was the reason the development of macroeconomics was diverted from the path Keynes marked out in the *General Theory* is correct. It can only be used in comparative static analysis and not to analyse policy changes. Only one question needs to be answered to make the case complete. Why did Keynes give it his cautious approval in 1937?

The major reason is certainly the clear-cut position in *IS-LM* that it is effective demand that determines the level of employment not the balancing, at the margin, of the utility of wages against the disutility of work. It rejects Pigou's theory of employment and Say's law, against which Keynes was crusading. A second reason is probably that it showed the effects of changes in the quantity of money on the real economy. Keynes argued strongly that the rate of interest, which had a key impact on output and employment, was a monetary phenomenon (1936a, chapter 13; 1973: 80). He would surely have welcomed support for this in *IS-LM*.

## 5.5 Chick and *IS-LM*

It is important to note that Chick's position on the *IS-LM* framework is typically individualistic, in that she neither wholly rejects it, as other post-Keynesian economists do, nor does she criticize it on the same grounds. As pointed out above, for most post-Keynesian economists, led by Joan Robinson, the main problem with the *IS-LM* framework is its static equilibrium nature. Chick, on the other hand, attacks the model on the basis of its internal logic, showing that it is not capable of incorporating features which would be regarded as basic to any actual economy, such as the price level or a reasonable financial structure.

In her book *The Theory of Monetary Policy*, after distinguishing between internal and external criticism of the model, she clearly opts for the former:

The *IS-LM* model can be criticised on two very different grounds: one can question its relevance to a money economy because it is static and

it ignores the changes in expectations that are the driving force of the economy in, for example, Keynes's model, or one can accept its formal structure but question its usefulness in analysing the problems at hand. Since it is so widely used in the monetary policy debate it can better be evaluated in its own terms.

(1977: 53)

Chick goes on to analyse the weaknesses of the *IS-LM* framework in its handling of price change and of its inadequacy in dealing with the interrelationship between fiscal and monetary policy.

With respect to price changes, the *IS-LM* framework focuses on the demand side of the economy. As a result, as Chick argues, in order to make price endogenous the model would need to be extended to incorporate supply, especially labour supply, as well as the degree of capacity utilization. Even if price changes are treated as exogenous, there are serious problems as the *IS* and *LM* framework does not treat prices symmetrically. The demand for money is a nominal demand, such that increases in the price level, *per se*, will increase the demand for money, and, hence cause shifts in the *LM* curve, but the *IS* curve is in deflated variables, therefore 'price-fixity is an essential assumption' (Chick 1977: 55). Chick is also dismissive of the implied separation of fiscal and monetary policy within the *IS-LM* framework, arguing that 'attempts to incorporate their interactions into the *IS-LM* framework opens the model to serious question, to say the least' (1977: 57; see also p. 132).

Despite the hesitant acceptance of the role of the *IS-LM* framework, Chick's subsequent rejection of it was to play an important role in the development of her economic thought. In 'Financial counterparts of saving and investment and inconsistency in some simple macro model's,<sup>9</sup> Chick provides one of the earliest critiques of the internal logic of *IS-LM* analysis (Chick 1992: xii). It is from this paper and particularly from its critique of the *IS-LM* framework, that Chick turned fully from conventional neoclassical macroeconomics and started her fundamental contributions to post-Keynesian theory:

Writing this paper ... I saw standard macroeconomics crumble and run through my hand ... I turned back to the *General Theory* as a result of my disillusionment, and my career thus changed its course.

(1992: 81)

In 'financial counterparts', Chick incorporates financial assets into the *IS-LM* framework. With such markets, saving represents the purchase of a durable asset, either real or financial, with the latter consisting of (at least) money holdings and bonds. Firms finance investment either from current income, or by the issue and sale of financial assets (bonds). Within this framework, Chick derives the condition for equilibrium which requires an

interest rate where 'all new saving flows into the bond markets' (p. 87). Clearly there are problems with this, as it requires all additional saving to go into bonds, with, at the same time, bond prices/rate of interest remaining constant. However, the larger the holding of bonds within any portfolio, *ceteris paribus*, the less attractive will further holding be. This suggests, in contradiction to the equilibrium condition, that for firms to be willing to lend more to banks, i.e. to take up more and more bonds, the return to bonds needs to rise (or their price fall).

The equilibrium solution generated by the *IS-LM* model, in contrast, suggests either that there exists some rate of interest at which savers are prepared to continue indefinitely to extend finance to firms, being satiated with money holdings, or that equilibrium is reached at that rate of interest just high enough to drive net new investment to zero.

It is not usually assumed that the only solution to the *IS-LM* model is that of the stationary state. For there to exist an equilibrium with positive rates of saving and investment, savers must at some interest rate exhibit absolute 'illiquidity preference'. In the *IS-LM* model, the existence of such a rate and the plausibility of the demand-for-bonds function which would ensure such a rate has simply been assumed.

(p. 88)

This conclusion represents a powerful critique of the framework. Previously, it was thought that the *IS-LM* framework was useful as a static model, investigating static equilibrium conditions, but that it could apply to an economy at any stage of growth. The 'financial counterparts' paper shows that this view is incorrect.

It is not surprising that Chick subsequently turned her attention to the *General Theory*, for, in fact, the basis of her critique can be found there. An increase in saving in the *General Theory* will reduce effective demand, and therefore increase unemployment. In neoclassical theory, the increase in saving, via the loanable funds model, generates an equal increase in investment, so there is no change in aggregate demand. Chick has shown the limitations of the neoclassical model, and the generality of the Keynesian one. For investment to increase by the same amount as saving, all new saving must go into bonds, which are used to finance the new investment, and none into money holding, which do not. Further, 'for the firms to get the money, they must make new issues at exactly the same time as new saving comes on to the market'.<sup>10</sup> In other words, Chick has exposed a further fundamental flaw in the loanable funds story, which goes beyond her critique of the *IS-LM* framework. The 'saving' variable in that model does not, in fact, represent total saving, rather it represents that saving which is in the form of bonds, excluding saving which may go into money holdings. To the extent that any new saving is in money, it cannot be converted into



investment, and so the equilibrium of the system will be disturbed, and the model will not hold.

In 'A Comment on *ISLM* an Explanation' Chick concentrates on the length of the period in Keynes's analysis and in that of Hicks. For Keynes it is the period for which production (and employment) decisions are made and it takes more than one period to reach equilibrium. In contrast, in *IS-LM* the period is long enough for equilibrium to be established, so must comprise several production periods. This produces problems for liquidity preference. There is also the problem of what happens to liquidity preference at the end of the period. Chick is critical of Hicks's solution to this problem and suggests an alternative which also accommodates the fix price assumption in *IS-LM*. She suggests that *IS-LM* be interpreted as applying in the situation where the economy is in equilibrium in Keynes's production period and the set of variables will repeat itself until something surprising happens. Although expectations are fulfilled, liquidity is warranted in case something surprising happens. It is not necessary to assume a horizontal aggregate supply curve as is usually done. Prices are only fixed in the sense that they are appropriate to an ongoing equilibrium situation. In this situation *IS-LM* determines what the level of aggregate income will be.

In *Macroeconomics after Keynes*, Chick was much more dismissive of the *IS-LM* model. She retains her criticism of the model's inability to deal with price changes. She is also critical of the 'framework of simultaneous equations – a method only suitable to the analysis of exchange' (Chick 1983: 4). Nevertheless, she is not totally dismissive:

There has been much criticism of *IS-LM* in recent years. My present view is that it doesn't have to be as misleading as it sometimes is – it is perfectly possible, for example, to include long-term expectations ... but it still leaves out the all-important aspect of producers' output decisions and the short-run expectations on which they are based.

(1983: 247)

Interestingly, despite the specific criticisms of the *IS-LM* framework discussed above, Chick does not raise two fundamental issues, which have been identified as major themes of her writings. In particular, the editors of her *Selected Essays* have identified the endogeneity of credit creation and 'the significance of historical time for economic process' (1992: ii). Both of these have been used to dismiss the *IS-LM* framework as not having any operational significance. Although rejecting the framework, Chick does so mainly because of problems with its logic, rather than due to these 'external' critiques.

## 5.6 Conclusion

Traditionally, post-Keynesian economists have rejected the *IS-LM* framework as being neither a valid simplification of the arguments in the *General*

*Theory* nor a reliable model for analysing macroeconomic issues. This rejection has centred on the static equilibrium nature of the *IS-LM* model. Hicks's 1937 article is usually blamed for diverting mainstream 'Keynesian' macroeconomics from the direction in which the *General Theory* was pointing it. Recently, it has been argued that the Hicks 1937 version of *IS-LM* is a valid simplification of the *General Theory*. This paper accepts the traditional views about the importance of factors lacking in *IS-LM*, but recognizes that Keynes did use an equilibrium concept in the *General Theory*, although one very different from the Walrasian general equilibrium in *IS-LM*. After looking at Keynes's own views on *IS-LM*, it comes to the conclusion that Hicks's 1937 article did have the faults that post-Keynesians typically ascribe to *IS-LM*.

Moreover, an examination of the writings of Chick on *IS-LM* suggested further problems with *IS-LM*. Chick argues that *IS-LM* is not internally consistent. There are two prongs to her argument. The first is that it is not enough to assume prices are determined exogenously. *IS-LM* can only be applied if the general level of prices is assumed to be constant. The second focuses on the implied assumptions about financial markets. Chick argues that 'for there to exist an equilibrium with positive rates of savings and investment savers must at some interest rate exhibit absolute "illiquidity" preference'. This must continue as long as the equilibrium continues. Except in the case of a stationary state this requires that an *IS-LM* is a short-term equilibrium. However, inasmuch as comparative static analysis is useful, it is useful for comparisons of different states of the economy or long-period equilibrium situations. Given Chick's analysis there seems nothing left for *IS-LM* to do. Our final evaluation is more damning than that of Chick herself.

## Notes

We wish to thank Victoria Chick for discussions over the years which have improved the authors' understanding of the issues discussed in this chapter.

1. Chick's distinction between equilibrium theory (i.e. this type of theory) and theory which has an equilibrium position is helpful at this point (Chick and Caserta 1997).
2. See e.g. Neville and Rao (1996: 193) for a description of this process.
3. Ingo Barends (1999: 85) has pointed out that on p. 229 of the *General Theory*, Keynes commented 'Nevertheless if we have all the facts before us we shall have enough simultaneous equations to give us a determinate result.' (Keynes 1936a: 229).
4. The old-fashioned term particular equilibrium is preferred because it emphasized that the equilibrium holds for particular values of particular variables that are outside the model.
5. In a discussion of the priority of five early interpretations of the *General Theory*, with similar sets of equations, Young (1987) demonstrates that Hicks knew of Harrod's paper before writing his own.
6. Harrod is clearly interpreting the marginal productivity of capital in nominal terms and as a variable equivalent to Keynes's marginal efficiency of capital.

7. In his letter to Keynes he goes so far as to argue that, on occasion, not enough weight was given to expectations in the *General Theory* (Reddaway 1936 [Keynes 1973]: 67). Keynes replied that, if so, it was due to inadvertence (1936b [1973]: 70).
8. See e.g. Ackley (1961: 370).
9. Hereafter cited as 'financial counterparts'. Originally published in 1973, although early drafts were written by 1968 (Chick 1992: 55). A condensed version is reprinted as Paper 5 in Chick (1992).
10. Chick in correspondence with the authors.

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# 6

## Keynes, Kalecki and *The General Theory*

*Peter Kriesler*

[W]ithout any contact either way, Michał Kalecki had found the same solution.... The interesting thing is that two thinkers, from completely different political and intellectual starting points, should come to the same conclusion.... I well remember my first meeting with Michał Kalecki—a strange visitor who was not only already familiar with our brand-new theories, but had even invented some of our private jokes. It gave me a kind of Pirandello feeling—was it he who was speaking or I?

(Robinson 1964:95)

In line with these comments by Joan Robinson, it is fairly well established that Keynes and Kalecki independently discovered the principle of effective demand. These two intellectual giants should have towered over twentieth-century economics. Their discovery showed, contrary to all previous economic thought with the possible exception of Marx<sup>1</sup> and ‘the brave army of heretical...under-consumption[ists]’,<sup>2</sup> that the economy would not necessarily generate full employment of all resources, especially not of labour. The reason for this was not some market ‘imperfection’, such as rigidity of prices or wages, but, rather, insufficient effective demand. In other words, fundamental to their respective visions of capitalist economies was the insight that there was no market mechanism that could guarantee full employment. Unemployment, far from being the result of a malfunction in the market mechanism, resulted from the way that markets worked. To achieve full employment, some exogenous injection of demand was required. Instead of the accolade due to them the contributions of Kalecki were largely ignored, especially in the mainstream, while those of Keynes were sanitized and introduced into the orthodoxy in a bastardized version with the emphasis on market imperfections<sup>3</sup>. Eventually even this version of Keynesianism was abandoned.

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Revised from A ‘Second Edition’ of *The General Theory*, 2: 300–322, 1997, ‘Keynes, Kalecki and *The General Theory*’, by Kriesler, P. With kind permission from Taylor and Francis LLC. All rights reserved.

Despite the similarity of their conclusions as to the inability of market economies to generate full employment, Keynes and Kalecki emerged from entirely different backgrounds and from very different intellectual traditions.<sup>4</sup> Given the differences between the two, it is not surprising that there are important differences in their derivation of the analysis of effective demand.

In the first edition of *The General Theory*, there was no mention of Michał Kalecki. As Kalecki was unknown at that time outside Poland, this was entirely reasonable. However, given the importance of Kalecki's contribution to macroeconomic thought, and the admission by major Keynesian economists of its similarity to that of Keynes, it would be fruitful to speculate on the consequences of the influence of Kalecki on a second edition. This chapter will look at the contributions of and differences between these economists. In doing so, it will suggest ways in which incorporation of aspects of Kalecki's approach may be used to improve the analysis of *The General Theory*, so contributing to a second edition. However, in order to evaluate these contributions, they must be contrasted with the approaches of their predecessors, which is done in the next section. To approach the question of how a Kalecki-modified *General Theory* would look, it is necessary to outline briefly the main contributions of *The General Theory* as well as of Kalecki. Finally, a comparison of the two will be attempted, and suggestions as to a post-Kaleckian second edition of *The General Theory* will be made.<sup>5</sup>

Before continuing, it is important to note the ambivalent attitude of Keynes to Kalecki's contributions. His comments on the work of Kalecki varied from being dismissive and rude, on the one hand, to admiration on the other.<sup>6</sup> In some cases, he cites Kalecki to support his arguments,<sup>7</sup> and elsewhere he modified his analysis as a result of Kalecki's work [Keynes (1939)]. This indicates that Keynes was, at times, prepared to accept criticisms from Kalecki. Subsequently the people around Keynes, especially Joan Robinson, have argued that Kalecki's contributions could have supplemented many aspects of those of Keynes.<sup>8</sup> In other words, although it is not in fact likely that a second edition would have contained the modifications suggested in this chapter, it is possible.

## 6.1 The Pre-Keynesian Theory

In discussing pre-Keynesian theory, we need to distinguish between classical and neoclassical economic analysis, although Keynes did not distinguish between them, lumping them together under his version of the term 'classical'. In discussing neoclassical analysis, there is little need to distinguish the pre-Keynesian and post-Keynesian versions, as there was no fundamental change as a result of *The General Theory*.<sup>9</sup>

### 6.1.1 Classical Economics<sup>10</sup>

The main concern of the classical economists was in explaining the growth and accumulation of nations in historical time. To this purpose, they

analysed the economy in terms of classes, believing that the determinants of distribution also determined the dynamics of the economy. Within this framework wages were taken as given at subsistence, so workers did not save. All investment (accumulation) came from profits. It was generally assumed that capitalists saved/invested all their profit. Unemployment was not considered to be a long-term problem due to some version of Say's Law, and the identification of acts of saving with investment, coupled with, in the case of Ricardo, a Malthusian mechanism. Although markets were assumed to be competitive, this should not be taken to be the same as the perfect competition of neoclassical economists. Rather, competition for the classical economists was associated with the tendency towards a uniform rate of profits. They did not distinguish between microeconomic and macroeconomic analysis, moving fairly easily between them. The distinction was not an operative one for either the classical economists or for Marx.<sup>11</sup>

Monetary and real variables were believed to be determined separately. In the financial sector, a version of the quantity theory linked the supply of money (in the form of gold) to the price level. The rate of interest was a real variable which equated saving and investment. There was little analysis of uncertainty or of the role of expectations.

### **6.1.2 Neoclassical Economics**

After the classical economists, the scope and method of economics changed. The focus became that of individuals maximizing at a moment of time. Economics became synonymous with price theory. Distribution and growth were relegated to secondary concerns.<sup>12</sup> The main point of the analysis was to show that flexible prices would clear markets. If there was unemployment, then the cause was rigid wages, which inhibited adjustment in the labour market, preventing the market-clearing price from being reached. In the loanable funds market, the 'natural' rate of interest equated saving (the supply of loanable funds) and investment (demand for those funds). Given the total level of employment, which was determined in the labour market, this market determined the division of that employment between the production of consumption and investment goods. As saving represented the supply of loanable funds, it was seen as being prior to investment. In other words, investment could not increase above the level determined by the supply of loanable funds.<sup>13</sup>

Employment, saving, investment, the rate of interest and relative prices were all determined within the real sector. The price level was seen as being a monetary variable determined within the monetary sector via the quantity theory. Accordingly, in the long run, the price level was seen as being exogenous to the real sector, being determined by the supply and demand for money. As a result, we had the neutrality of money in the long run, whereby monetary variables could not effect real variables, and vice versa. According to Pigou, money is a veil. It is a surface phenomenon, having no real influence except that it can hide the underlying real story.<sup>14</sup> Economic

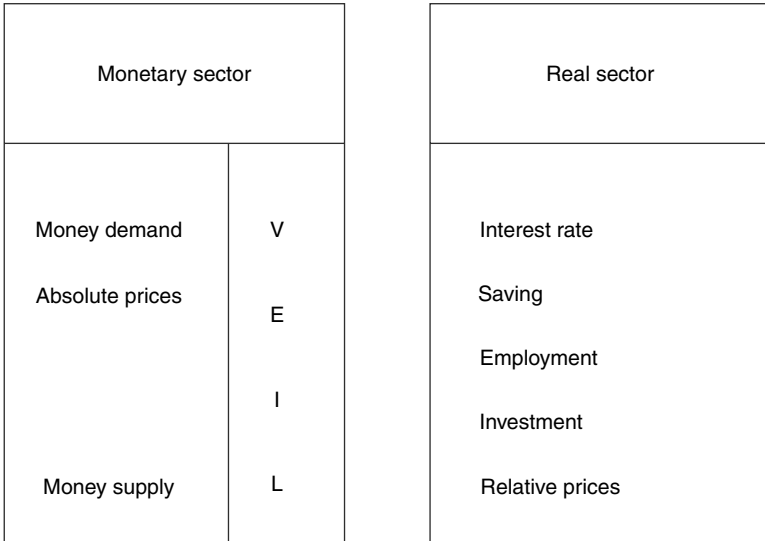


Figure 6.1 Relation between monetary and real sectors in neoclassical economics

agents see the economy through the veil of the monetary variables, which lie between the real variables and those agents. In other words, the perception of the economy was as if there was a box in which real variables were determined (including the rate of interest). In another box the monetary variables determined the inflation rate, with no connection between the boxes, at least in the long run. This can be represented as in Figure 6.1, where there are no connections between monetary and real variables.<sup>15</sup> In other words, monetary variables cannot affect real ones.

Most economists associated with ‘neoclassical’ general equilibrium deny any separate identity for macro theory, which is perceived as being some sort of aggregate of micro relations. Economists in this tradition, if they attempt to ‘do macroeconomics’, do so by deriving ‘macroeconomic’ results—such as non-market clearing equilibria—in general equilibrium models. By denying legitimacy to any ‘holistic’ approach<sup>16</sup> they reject the criticism, made by both Keynes and Kalecki, that there is a fallacy of composition involved in drawing macro conclusions from micro theory.<sup>17</sup> The underlying assumption behind this approach is that microeconomic theory is fundamental, while macroeconomic theory is only valid when derived from it.<sup>18</sup>

## 6.2 The General Theory of Employment, Interest and Money

It was against this type of economic analysis that Keynes reacted. Like most path-breaking works, *The General Theory* contained a critique of the

economic orthodoxy of the time, and the outline of a new approach to economics. The essence of Keynes's critique was in the logical idea of the fallacy of composition:

I have called my theory a *general* theory. I mean by this that I am chiefly concerned with the behaviour of the economic system as a whole... And I argue that important mistakes have been made through extending to the system as a whole conclusions which have been correctly arrived at in respect of a part of it taken in isolation.

(Preface to French edition: *C.W.* VII: xxxii)<sup>19</sup>

In particular, he argued that the conventional theory errs in its treatment of the labour market, and of the saving-investment relation (*C.W.* VII: 84–5, 257–60).

The fallacy of composition becomes the basis for the distinction between micro and macro economics:

Though an individual whose transactions are small in relation to the market can safely neglect the fact that demand is not a one-sided transaction, it makes nonsense to neglect it when we come to aggregate demand. This is the vital difference between the theory of economic behaviour of the aggregate and the theory of behaviour of the individual unit, in which we assume that changes in the individual's own demand do not affect his income.

(*C.W.* VII: 85)

Keynes used this to argue that, instead of the neoclassical dichotomy between monetary and real analysis, these need to be integrated, and that the correct dichotomy was between micro and macro analysis:

The division of economics between the theory of value and distribution on the one hand and the theory of money on the other hand is, I think, a false division. The right dichotomy is, I suggest, between the theory of the individual industry or firm and of the rewards and the distribution between different uses of a given quantity of resources on the one hand, and the theory of output and employment as a whole on the other hand...as soon as we pass to the problem of what determines output and employment as a whole, we require the complete theory of monetary economy.

(*C.W.* VII: 293)

Keynes, in this passage, argues for a micro—macro dichotomy. Macroeconomic theory explains the determination of total output and employment, while



microeconomics explains the composition of that output. This is reiterated in the 'Concluding Notes' of *The General Theory's* last chapter:

If we suppose the volume of output to be given, i.e. to be determined by forces outside the classical scheme of thought, then there is no objection to be raised against the classical analysis of the manner in which private self-interest will determine what in particular is produced, in what proportions the factors of production will be combined to produce it, and how the value of the final product will be distributed between them.... To put the point more concretely, I see no reason to suppose that the existing system seriously misemploys the factors of production which are in use.... It is in determining the volume, not the direction, of actual employment that the existing system has broken down.

(C.W. VII: 378–9)

In other words, Keynes is arguing for the independence of microeconomic and macroeconomic factors. Macroeconomic factors, *by themselves*, explain the volume of employment and output, independent of microeconomic factors, which explain its composition. This passage also gives the basis of the micro—macro distinction used in the chapter. Microeconomic factors are taken as referring to those factors which determine price and output of individual firms and industries, in other words, they determine the composition of a given output and are determined by the structure of product markets. Macroeconomic factors, on the other hand, determine the volume of total output and employment. Keynes believed that this occurred independently of the microeconomic factors.<sup>20</sup>

Within the parameters defined for macroeconomic theory, Keynes identifies the main determinant of the level of employment as the level of effective demand. This, in turn, in a closed economy with no government is equal to the sum of expenditure on consumption and on investment.

Much has been written of Keynes's analysis of consumption and investment. It is important to note that his discussion of consumption is extremely sophisticated, and incorporates the basic ideas underlying all of the subsequent formulations of the consumption function.<sup>21</sup> The key determinant of consumption in the short run was, according to Keynes, not the rate of interest but, rather, the level of income. Although he did allow for the fact that incomes from different factors are associated with different marginal propensities to consume, this was never an important feature of his analysis.<sup>22</sup>

For Keynes, investment is determined by the marginal efficiency of capital and the rate of interest. Importantly, although, by definition, in equilibrium saving will equal investment, it is changes in income which equate them via the multiplier process, rather than the rate of interest:

Keynes's intellectual revolution was to shift economists from thinking normally in terms of a model of reality in which a dog called savings

wagged his tail labeled investment to thinking in terms of a model in which a dog called investment wags his tail called saving.

(Meade 1975:62)

The determination of the rate of interest, if it is no longer the price which equates saving and investment, was, as a result left 'in the air' (C.W. XIV: 212). For determination of the rate of interest Keynes looked at the money market: 'The rate of interest...is the "price" which equilibrates the desire to hold wealth in the form of cash with the available quantity of cash' (C.W. VII: 167).

In other words, Keynes believed that the rate of interest was mainly determined in the monetary sector as the price that equates demand with a given supply of money. For Keynes, then, the rate of interest was determined by the level of nominal income, the liquidity preference schedule (which is based on underlying uncertainty), the money supply and the supply of substitute assets. As a result, the rate of interest no longer represents the reward for abstaining from consumption as it does in neoclassical theory, but becomes the reward for parting with liquidity.

So far, this discussion of the central principles of *The General Theory* has avoided explicitly discussing the underlying importance of expectations, which play a fundamental role in Keynes's analysis. Keynes makes it clear that most of the variables are 'expected' ones, with expectations and uncertainty playing a particularly important role in his analysis of money and of investment.<sup>23</sup>

In Keynes's analysis monetary and real variables cannot be separated, as they are in neoclassical theory. Money is not neutral, as his comments, quoted earlier, about the need to integrate monetary and real theory for the treatment of output and employment, indicate. The rate of interest, which is a monetary variable, together with the marginal efficiency of capital determines the level of investment, which in turn determines the level of both nominal and real income. These, in their turn, influence the rate of interest by their effect on the demand for money. The absolute price level also moves from being determined in the monetary sector to being determined in the real sector by costs of production (C.W. VII: 292–8). This is summarized in Figure 6.2. In other words, for Keynes monetary variables can affect real variables and real variables can affect monetary ones.

In Chapter 19, one of the key chapters of *The General Theory*, Keynes put his analysis together in considering the effects of changes in moneywages.<sup>24</sup> For a reduction in money-wages to increase employment, it would have to do so by increasing effective demand. To do this, according to Keynes, it would need to operate on the exogenous variables and determining relations, namely the propensity to consume, the money supply, the marginal efficiency of capital schedule or the schedule for liquidity preference. Here Keynes notes that the fall in money-wages will redistribute income from wage-earners to other factors and from entrepreneurs to rentiers. The net

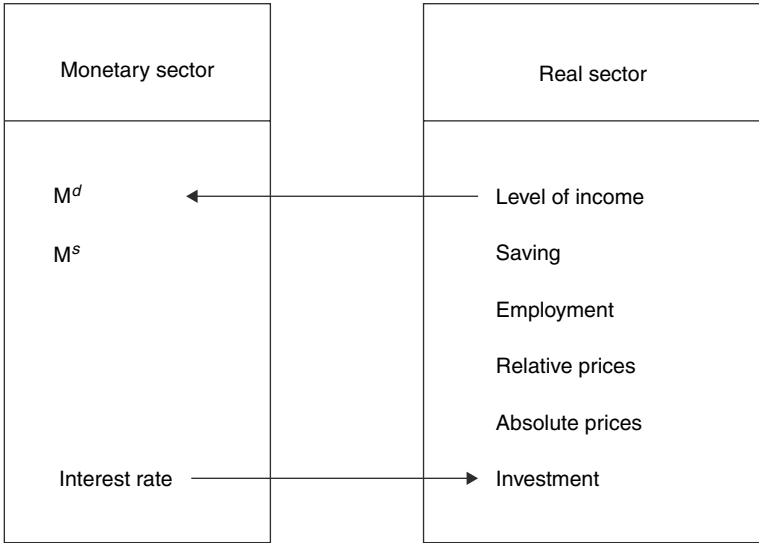


Figure 6.2 Relation between monetary and real sectors for Keynes

effect of these is a likely fall in the propensity to consume. Its impact on investment depends on how it influences both general expectations and those of future wage changes. These, in turn, will impact on the marginal efficiency of capital. Keynes also notes that the increased burden of debt for some enterprises caused by the deflation ‘may partly offset any cheerful reactions from the reduction of wages’ (C.W. VII: 264), indicating the ‘adverse effects on investment’ of bankruptcy.

There is one important mechanism whereby the deflation caused by the reduction in wages may lead to increased employment, via the influence on the interest rate. The reduction in prices will lead to a reduction in nominal income, which reduces the transactions demand for money. This will reduce the rate of interest. With a given marginal efficiency of capital schedule, this will lead to an increase in investment, thereby increasing employment. This mechanism is referred to in the literature as the Keynes effect, and is the one way in which Keynes allows a reduction in money wages to have a positive influence on employment: ‘It is, therefore, on the effect of a falling wage – and price – level on the demand for money that those who believe in the self-adjusting quality of the economic system must rest the weight of their argument’ (C.W. VII: 266).

Keynes warns that there are serious limitations to this adjustment mechanism. First, it depends on the quantity of money being fixed, and not being endogenously determined as a function of the level of wages, economic activity or prices. Second, the mechanism is equivalent to using

monetary policy to expand the money supply, which would be a preferable option. In any case both are limited, in that a moderate change ‘may prove inadequate, whilst an immoderate [one] might shatter confidence even if it were practicable’ (C.W. VII: 267). In other words, the marginal efficiency of capital schedule is unlikely to remain stable during the deflationary process.

Nevertheless, it is important to note that the Keynes effect represents a mechanism whereby a reduction in the money-wage rate may increase employment, albeit via a very different mechanism from that envisaged by the neoclassical economists.

Leaving the Keynes effect aside for the moment, this demonstrates Keynes’s central message, that there is no mechanism which guarantees full employment in capitalist economies. If it is achieved, then this is just a fluke. Involuntary unemployment is not caused by rigidities in money-wages or the rate of interest, but by the failure of effective demand.

Before continuing, it is necessary to examine an important modification which Keynes subsequently made to his analysis of the determination of the rate of interest. In 1937 Keynes published two replies to some of the critics of his analysis of interest in which he analysed an additional determinant of the demand for money. This was a demand for money to *finance* investment, which arises because ‘planned investment – i.e. investment *ex ante* – may have to secure its “financial position” *before* the investment takes place; that is to say, before the corresponding saving has taken place’ (C.W.XIV: 207). For Keynes the finance motive serves the same function as the other demands for money, and operates mainly through its influence on the rate of interest:

[I]f the liquidity preference of the public...and of the banks are unchanged, an excess in the finance required by current *ex ante* output (it is not necessary to write ‘investment’, since the same is true of *any* output which has to be planned ahead) over the finance released by current *ex post* output will lead to a rise in the rate of interest.... Just as an increase in actual activity must...raise the rate of interest unless either the banks or the rest of the public become more willing to release cash, so...an increase in planned activity must have a similar, superimposed, influence.

(C.W. XIV: 220–1)

As a result, ‘a heavy demand for finance can exhaust the market and be held up by lack of financial facilities on reasonable terms.... It is the supply of available finance which, in practice, holds up from time to time the onrush of “new issues”’ (C.W. XIV: 210).

The importance of the discussion of the role of finance lies in its being a direct avenue in which Kalecki’s analysis of the role of monetary

considerations can be incorporated into *The General Theory*, as is discussed below (p. 312).

### 6.3 Criticisms of *The General Theory*

In outlining the contributions of a Kalecki-influenced *General Theory* it is important to consider some of the limitations and criticisms of *The General Theory*. As is well known, *The General Theory* is an extremely controversial book, with much criticism being aimed at its central argument. This section will concentrate on criticisms that are valid, in the sense of accepting the basis of the Keynesian system. This is an important distinction to make, as many of the criticisms of the central tenets, particularly those associated with the neoclassical synthesis, ignore the essence of the Keynesian system. For example, those economists who stress the importance of rigid money-wages or of the liquidity trap as the mechanisms which prevent the achievement of full employment are ignoring *The General Theory* where both of these are explicitly ruled out as the causes of unemployment.<sup>25</sup>

One of the most important critics of Keynes's unemployment result was Pigou. He argued that if wealth were an argument in the consumption function, in addition to current income, then a reduction in wages would lead to full employment. This was due to the increase in the value of monetary assets caused by the wage deflation, which would, therefore, increase consumption and so restore full employment. Indeed, if the wage deflation continued long enough, then effective demand could not be deficient as one cent could buy a nation's GNP. This mechanism has been called the Pigou or real-balance effect. The most important response to this argument came from Kalecki in 1944. According to Kalecki, Pigou's analysis relies on the assumption of money supply exogeneity. In responding, Kalecki distinguished between 'inside' and 'outside' money. Inside money was the asset (cash and deposits) whose liability ('credits to persons and firms') is also held within the private sector. In this case, the reduction in prices will influence balance sheets, causing a redistribution between the holders of money and 'bank debtors', which will reduce the propensity to consume. With outside money, on the other hand, the asset (gold and currency) is held in the private sector, the offsetting liability is held outside the private sector, and therefore the redistribution will not decrease consumption. As a result, if the stock of outside money is relatively small, it would require a massive deflation to reduce saving sufficiently to generate full employment, and, in the process, 'wholesale bankruptcy and a confidence crisis' would overwhelm the Pigou effect (Kalecki 1944:342–3).

The second major problem was identified with the analysis of investment in *The General Theory*, and particularly its static nature. Patinkin has noted that Keynes provided an analysis of the optimal capital stock, and not of the determination of the level of investment. Kalecki (in his review of *The*

*General Theory*) argues that there was a logical flaw in Keynes's analysis of investment, 'the reason for this failure lies in an approach which is basically static to a matter which is by its nature dynamic' (Kalecki 1936:231).

Consider the effect of a fall in the rate of interest. *Ceteris paribus*, this will lead to an increase in the level of investment, which will increase output and employment via the multiplier. According to Keynes, the main determinant of expectations of the future are current events. As a result, there will be an improvement in expectations which will shift the marginal efficiency of capital schedule outwards, and further increase investment. This will start the cumulative cycle again. The result of this is that, instead of Keynes providing a theory of unemployment equilibrium, Kalecki argued that it is really a theory of the business cycle.

The final criticisms of *The General Theory* are those discussed by Kaldor in a number of places, but in particular in his 'Limitations of *The General Theory*'. Kaldor identifies two major limitations:<sup>26</sup> first, that Keynes was 'unaware of the importance of imperfect competition to his theory' (Kaldor 1983b: 79);<sup>27</sup> and second, that Keynes treated the money supply as being fixed rather than as being endogenously determined. The endogenous money supply goes to the heart of two of the criticisms which allow full employment to be restored as a result of reductions in money-wages. Neither the Keynes effect nor the Pigou/real-balance effect will operate as a mechanism for increasing aggregate demand unless the money supply is exogenous, as the essence of both is that individual agents are left with excess money balances in their portfolios. It is the attempt to reduce these excess balances which restores full employment. However, if the money supply is treated as being endogenously determined, then there is no longer a channel for reductions in money-wages to increase employment.

## 6.4 Kalecki

In order to facilitate comparison with the discussion of Keynes in the previous section, it would have been useful to consider Kalecki's equivalent of *The General Theory*. However, even though there is no equivalent work of Kalecki, there is a certain continuity which runs through his analysis of capitalism. In particular, Kalecki's concern with the dynamic question of the determination of the business cycle will be considered in this section.

Kalecki also made criticisms, similar to those of Keynes, based on the fallacy of composition of orthodox economics in deriving conclusions related to 'the economy as a whole' based on individual experience.<sup>28</sup> They had similar views about the determination of employment, through the level of effective demand, determined by consumption and investment. Kalecki, like Keynes, rejected the role of the rate of interest in equilibrating saving and investment, but argued instead that they were equated by changes in the level and distribution of income caused by changes in the level of investment.<sup>29</sup>

This highlights an important distinction between the two writers. Kalecki's analysis was always in terms of classes—workers and capitalists—with the implication that the main determinant of people's economic relations was their role in production, and the constraints on their activities which this implied.<sup>30</sup> So workers are assumed to have a passive role, consuming all their income, while capitalists make investment, saving and consumption decisions influencing employment and prices. In other words, the classes are associated with different types of economic activity.<sup>31</sup> As a result, in Kalecki's work, the distribution of income is an important determinant of the level of income via, *inter alia*, its influence on the level of consumption. If wages are mainly consumed, while capitalists consume, save and invest, then changes in income and employment, according to Kalecki, also result from changes in distribution or from changes in capitalist expenditure decisions.<sup>32</sup> Further, unlike Keynes, who was mainly interested in the determination of output, Kalecki was concerned with the distribution of income for its implications for the living standards of the lower income groups.

Within this framework, employment and output are determined, as with Keynes, by consumption and investment demand. However, Kalecki's treatment of both components of aggregate demand varied substantially from that of Keynes. Using the Marxian reproduction schemes, Kalecki divided the economy into three sectors, on the basis of the nature of each sector's output.<sup>33</sup> Sector 1 produces capital goods; sector 2, capitalists' consumption goods; and sector 3, workers' consumption goods. The importance of this analytical division is the direct result of Kalecki's stress on distribution, as reflected in his use of the classical assumption that workers consume all their income. As a result, the output and employment of sector 3 are determined by the distribution of income between wage-earners and capitalists. As saving and investment come from capitalists, whose expenditure decisions are not limited by their current income, it is these expenditure decisions that determine both the output of sectors 1 and 2 and capitalist profits. Capitalist consumption can be decomposed into a stable (fixed) part and a part which is proportional to past profits. In other words, capitalist consumption, according to Kalecki, is determined by historical, not current, values. Investment determines the output of sector 1.

Although Kalecki saw investment as 'the central *piece de resistance* of economies', it was the aspect of his work with which he was least satisfied, changing it continuously. Nevertheless, some constant themes recur. First, there is an emphasis on dynamic considerations in the analysis of the determinants of investment. Investment was seen as the least stable part of national income, and the main cause of cycles. Kalecki differentiated the investment decision from the resultant flow of investment, implying a lag between the decision and the resultant impact on aggregate demand, allowing for changes in 'entrepreneurial reactions' to explain differences between the two. The main determinants of investment were the ability of firms

to finance investment internally, the size of the capital stock and profits. These, in turn, were determined by both the level and the rate of change of the level of economic activity. The rate of interest was not seen as being particularly significant, mainly because it was the long-term rate of interest which might influence investment decisions, and this did not exhibit 'marked cyclical fluctuations' (Kalecki 1990:113).<sup>34</sup>

The financial sector's role in the investment process was through the medium of the availability of credit. This represents a substantial difference to Keynes, who stressed the role of the cost of finance rather than its availability, even after incorporating the finance motive. Kalecki's analysis of the determination of the rate of interest is similar to Keynes's discussion of the transactions demand. Kalecki distinguished between the short-term and the long-term rates of interest. The short-term rate of interest is determined by the value of transactions in the economy and the supply of money. An increase in the supply of money reduces the rate of interest. The long-term rate of interest, on the other hand, is a function of the expected short rate. According to Kalecki, as well as determining credit, banks controlled the money-creation process. It was their willingness to expand the money supply and extend credit which facilitated any expansion in investment. Similarly, if it was not forthcoming, it could constrain it. In other words, Kalecki argued that the supply of money was endogenously created in the private sector by banks. It is the response of the banking system to increased demand for money which determines the limits of the expansionary phase of the business cycle (Kalecki 1990:13–14). In other words, in Kalecki's analysis it is banks, which are private sector firms, which determine changes in the money supply, depending on perceived profitability.<sup>35</sup>

According to Kalecki, the financial sector was as imperfectly competitive as the rest of the economy. It was this which explained the importance of internal finance to enable firms to expand (Kalecki 1937a).

For Kalecki, employment was determined by two separate factors. First, the expenditure decisions of capitalists determined the output of sectors 1 and 2. These were influenced by past profits and by both the level of economic activity and its rate of change. Second, factors associated with the mark-up determined the share of wages in national income. This, in conjunction with the level of output in sectors 1 and 2, determined employment and output in sector 3. This means that both micro and macro factors play a role in the determination of the level of output.

Like Keynes, investment for Kalecki plays a pivotal role in determining income. For Kalecki, this operates via its effect on the level of profits, which vary directly with changes in investment expenditure.

The relation between monetary and real sectors for Kalecki is represented in Figure 6.3. The main differences between Keynes and Kalecki in terms of the relations between sectors is the importance of availability of finance



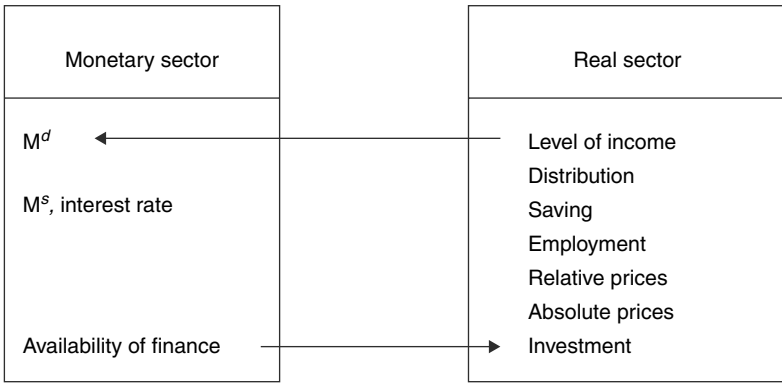


Figure 6.3 Relation between monetary and real sectors for Kalecki

as the significant monetary variable, and the addition of distribution as a major real variable.

### 6.5 Keynes and Kalecki Compared

In order to understand both the similarities and the differences between Keynes and Kalecki, it is important to acknowledge the differences in their agendas. For Keynes:

This book [*The General Theory*] is chiefly addressed to my fellow economists.... But its main purpose is to deal with difficult questions of theory, and only in the second place with the applications of this theory to practice.... Thus I cannot achieve my object of persuading economists to re-examine critically certain of their basic assumptions except by a highly abstract argument and also by much controversy.... I have thought it important, not only to explain my own point of view, but also to show in what respects it departs from the prevailing theory.

(C.W. VII: xxi)

In other words, as was argued above, *The General Theory* is aimed at showing both the errors of the prevailing orthodoxy and Keynes's own theory. To achieve this end, he was fundamentally concerned with showing the possibility of unemployment equilibrium and demonstrating that there was no mechanism within a market economy capable of restoring full employment. The analysis is concerned with abstract theory; policy consequences are only a secondary concern. This purpose should be contrasted with that of Kalecki, whose aim was not to engage in polemic with other economists but, rather, to attempt to understand the dynamics of capitalist economies,

in particular, to provide an analysis of business cycles. As such, he was not concerned with making his ideas intelligible to the prevailing orthodoxy, but instead with drawing direct policy consequences. In addition, their different backgrounds played an important role in their different perceptions of the economy. Keynes came from an early study of philosophy and mathematics, entering economics by studying Marshall, and then engaged in applied work on currency, emerging as a monetary economist. Kalecki, on the other hand, never formally studied economics. His training was the result of early reading of Marxist economists in the under-consumptionist tradition, coupled with applied work on the Polish economy.<sup>36</sup> It was these which led him to the conclusions that capitalist economies were imperfectly competitive and subject to fluctuations, with unemployment being the norm.<sup>37</sup>

The work of Keynes and Kalecki, in many respects, represents a return to the focus and method of the classical economists. The interest in the macro-economic question of the determination of output, as well as their approach, is reminiscent of classical theory. Kalecki, in particular, has resurrected the classical research agenda by placing distribution, growth and accumulation at the centre of economic analysis. In addition, the way in which he interrelates micro and macro theory, as well as his methodological use of historical time are very classical.<sup>38</sup> However, there are also some important differences. In particular, their denial of both Say's Law and the quantity theory means that Keynes and Kalecki developed alternative explanations of the determination of employment, the rate of interest, the monetary sector and especially the general price level. For the classical economists, real and monetary variables were distinct, with the rate of interest being a real variable which equates saving and investment.

This return to the classical approach helps to explain why Kalecki's and Keynes's insights were not used to modify neoclassical theory. In a sense, their approach was too alien to the conventional wisdom and undercut what has been called the 'hard core' of that theory. For neoclassical analysis, the neutrality of money and adherence to some version of Say's Law meant that monetary variables had no significant long-run influence on real ones, and unemployment could only be a temporary aberration caused by rigid wages or some other temporary phenomena.

In terms of the criticisms of *The General Theory* outlined above, it is interesting to note that none of them can be applied to Kalecki's version of the theory of effective demand. As has been argued, Kalecki assumed an endogenous money supply and, in fact, used this to reply to Pigou. This, of course, means that he had a different explanation for the determination of the rate of interest to that of Keynes.

It is well known that the starting point for Kalecki's analysis of output and employment was generally with the assumption of imperfect competition. He was extremely critical of the assumption of perfect competition, arguing

that it was a 'dangerous myth'. This can be contrasted with Keynes, who was clearly dismissive of the analysis of imperfect competition, especially its implications for macroeconomic theory.<sup>39</sup>

At this stage it is appropriate to consider some of the main contrasts between Keynes and Kalecki. In order to bring these into sharper focus, their positions will also be compared to those of classical and neoclassical economists on a number of key issues. The numbers refer to Table 6.1 which summarizes the points of comparison.

**The role of macroeconomics and of microfoundations (1)** The early history of economics drew no distinction between macroeconomic and microeconomic analysis. Although the central concerns were with what we would now call macroeconomic questions, such as the determinants of growth and accumulation, these were seen to be strongly connected to the analysis of firms and prices. However, the 'marginal revolution' of the 1870s shunted the car of economics on to a different track. Microeconomic analysis became virtually synonymous with economics. The question of the determination of relative prices and quantities came to occupy the centre of the economic stage. Except for the discussion of monetary analysis of cyclical behaviour, macroeconomic analysis disappeared from the story. One of the major contributions of both Keynes and Kalecki was to restore macroeconomic analysis to an independent and important role in economic analysis. In particular, both relied on some form of fallacy of composition to illustrate the important principle that the behaviour of macroeconomic variables cannot be derived by simply aggregating up from the microeconomic level. However, on the question of microfoundations, Keynes paid little attention to micro considerations, including product markets.<sup>40</sup> His assumption of a given 'degree of competition' effectively rules out any role for imperfect competition. There is no real development of the microfoundations behind the analysis. Instead, Keynes concentrates on the role of financial markets, due to the importance of the rate of interest for investment decisions. In Kalecki, on the other hand, emphasis shifts away from financial markets to product markets, where determination of the mark-up has a direct bearing on employment via its role in determining the share of wages in national income:

The importance of Kalecki's line of argument was in integrating the analysis of prices with the analysis of effective demand. Before Keynes, they were kept in two separate boxes; in America now the division between micro and macro theory is more complete than ever; but no progress can be made with either until they are united in a truly *General Theory*.

(Robinson 1977:190)

In other words, as has been argued above, the link between micro and macro is an important part of both classical and Kaleckian analysis, while Keynes



maintained a dichotomy between them. The neoclassical economists, on the other hand, stressed the primacy of microeconomics.

**Relations between monetary and real sectors (2–4)** In both Keynes and Kalecki, monetary variables can affect real variables and real variables can affect monetary ones. In both cases the channel of transmission of the monetary sector is through investment. For Keynes, this is through the determination of interest rates, while for Kalecki, the main role of the monetary sector is to facilitate investment. For Kalecki, the role of financial markets lies in their ability to restrict the availability of finance and therefore provide constraints on investment.<sup>41</sup> However, if they do not do so, the friction which they create can constrain the economy. For both economists, changes in the level of income leads to changes in the transactions demand for money which, in turn, influences, albeit for different reasons, the rate of interest. This is in contrast to both classical and neoclassical economists, for whom there is an important dichotomy between these sectors. These distinctions are manifested in the mechanism which equilibrates saving and investment. For Keynes and Kalecki, these are equated by changes in the level of income, while the rate of interest is a monetary variable. For both classical and neoclassical economists, it is changes in the rate of interest which equates saving and investment, which, therefore, is a real variable.

**Money supply (5)** Keynes, in common with classical and neoclassical economists, assumed that the money supply was fixed, and determined by the central bank. For Kalecki, on the other hand, the banking sector as a whole consisted of imperfectly competitive private sector firms which could create money. Therefore, the money supply was endogenous to the private sector.

**Distribution (6)** Kalecki's analysis, like that of the classical economists, was always in terms of class, whereby distribution plays a key role in determining levels of output and employment. In neoclassical economics and in Keynes, distribution is a secondary consideration.

**Imperfect competition/real wages (7)** Because Keynes assumed diminished returns to be one of the great constants of economics (Keynes 1939), an expansion of output would lead to a fall in real wages, as it pushes up cost of production and reduces the marginal product of labour. This inverse relation between real wages and employment enabled the neoclassicals to reclaim Keynesian economics in a bastardized version.<sup>42</sup> Kalecki, on the other hand, due partly to the assumption of constant returns, does not posit any definite relationship between changes in employment and changes in real wages. In other words, while Keynes, like the classical economists, implicitly assumes a competitive economy, Kalecki assumes an imperfectly competitive one. Modern neoclassical economics also considers the possibility of imperfect competition, and it has been implicated as an explanation for the existence of unemployment.

**Uncertainty and expectations (8)** Kalecki rarely dealt with the economic implications of expectations and uncertainty. In the few places in which he did, he hinted that he believed the main determinant of expectations of the future to be current events.<sup>43</sup> However, this is clearly not an adequate analysis, especially not when compared with the rich discussions on these issues of Keynes, in particular the importance of expectations for the determination of both the level of investment and the rate of interest.<sup>44</sup> These played a subordinate role in classical economics. Neoclassical economics, on the other hand, finesses the question. Either they follow Friedman and Savage in allowing for uncertainty but assuming that the distribution and mean are known, so that we are exactly certain of our uncertainty, or the assumption of 'rational' expectations is made so as effectively to dismiss expectations as an independent consideration.<sup>45</sup>

This discussion is summarized in Table 6.1 which allows a comparison to be made of the role of the issues discussed in classical and neoclassical economics, as well as their role in the analysis of Keynes and Kalecki.

## 6.6 Conclusions

Now that we have compared and contrasted the contributions of Keynes and Kalecki, we are in a position to see the extent to which incorporating some of Kalecki's insights into *The General Theory* would improve a second edition. As has been argued above (p. 94) *The General Theory* was written as a polemical work, aimed at economists. As a result, its main purpose was theoretical and not 'practical'. A second edition could redress this. In particular, the incorporation of Kalecki's insights, which were practically orientated, provides an appropriate mechanism for this process. In addition, some of the concerns with the general theoretical statements could be addressed via such a new edition. Some of the more important changes can be summarized as follows:

1. The micro – macro and the real – monetary dichotomies: for the classical economists, there is no micro – macro dichotomy, but there is a real-monetary one. For neoclassical economists, macro does not matter, and there is a real – monetary dichotomy. For Keynes, while there is no real- monetary dichotomy, there is a dichotomy between micro and macro; while for Kalecki there is neither a real – monetary nor a micro – macro dichotomy. In other words, for Kalecki, in order to explain the determinants of output and employment, micro and macro considerations, monetary and real factors all play a role. A Kalecki-inspired *General Theory* would keep the integration of the monetary and real sectors which are the cornerstones of Keynes's analysis of output. However, it would abolish the dichotomy between microeconomic and macroeconomic variables, allowing both to play a role in the determination of aggregate output and employment, through the role of distribution.

2. Similarly, the incorporation of the role of distribution and of imperfect competition would strengthen the microfoundations, which were a sad omission from the first edition.<sup>46</sup> In particular, following Kalecki, a primary role would be given to distribution, both as an important policy variable, and also as a key consideration in determining the level of effective demand.<sup>47</sup>
3. The incorporation of endogenous money, by allowing an important role for bank credit creation, would blunt the criticisms associated with the Keynes and the Pigou effects, as well as answering one of Kaldor's strongest criticisms.<sup>48</sup> In addition, it would allow a role for imperfections in financial markets,<sup>49</sup> and for the influence of the availability of finance on investment. Given the role finance had played in Keynes's writings subsequent to *The General Theory*, these would not involve substantial modifications.
4. Keynes's investment analysis would be modified in the manner discussed above, to incorporate dynamic concerns and explicitly introduce the importance of finance. At the same time, Keynes's insights into the nature and importance of uncertainty would be retained, but extended to the financial markets. As a result, the analysis of *The General Theory* would become dynamic and able to incorporate the important modifications which formed the heart of the Kaleckian system.

## Notes

I should like to thank John Nevile and Trevor Stegman from the University of New South Wales, Joseph Halevi and Louis Haddad from the University of Sydney, Craig Freedman and Rod O'Donnell from Macquarie University, Mike White from Monash University and Geoff Harcourt from Cambridge University for their helpful comments. The paper on which this chapter is based was presented at the 8th HETSA Conference, and I should like to thank the participants for their useful suggestions.

1. See Sardoni (1987, 1996).
2. C.W. VII: 370–1. See also p. 33n, where he refers to effective demand living only 'below the surface in the underworlds'.
3. 'Keynes's version of the new theory was emasculated and wrapped up again in equilibrium and Kalecki's version was simply ignored' (Robinson 1977:185).
4. It is not the purpose of this chapter to rehearse the debate of who got there first. Those interested in the question of the winner of the race are referred to Osiatynski (1990:463–7) and Chapple (1991) and the references made there.
5. One important omission from the discussion is that of international considerations, which was largely neglected in the theoretical core of *The General Theory*. Both economists wrote extensively on this area, and reached similar conclusions about the implications of trade for domestic effective demand.
6. This is discussed in Kriesler (1988a, 1988b). In addition, see Keynes (1939) and Osiatynski (1990:567–70).

7. See, for example, *C. W.* XIV 208n.
8. See, for example, Robinson (1964, 1977).
9. Neoclassical theory is here taken to refer to two branches of that theory. The first originated in Marshall, and was developed by Pigou. It was the Pigouvian version of the theory which Keynes attacked as representing the whole of neoclassical theory. The other branch is that which dominates the high theory of the discipline, and originated in the general equilibrium analysis of Walras. In particular, the versions of the theory developed from the end of the nineteenth century, which still dominate the discipline, are the ones referred to.
10. Clearly, in such a brief general discussion of the classical economists, a very broad brush has been used. This may not be fair to all members of the school. Rather, it is hoped to convey a rough guide to their treatment of the relevant issues.
11. See Kriesler (1996).
12. They were often analysed as part of the explanation of the business cycle, which explained short-run deviations from the long-run equilibrium position.
13. This, of course, is the famous Treasury view, against which Keynes reacted, and which has been resurrected in the modern form of complete 'crowding out'. There is evidence that the Treasury view may have been modified after 1929 (Clarke 1988).
14. This is the basis of the monetarist (Friedman) explanation for why there is a Phillips curve-type trade-off in the short run.
15. It should be noted that 'real' in this figure is used to explain variables determined in the 'real' sector, and is being contrasted to variables determined in the 'monetary' sector. This is a different dichotomy to that of nominal—real, which is referring to the role of price changes, not to the sector in which the variables are determined.
16. See, for example, Hahn (1984:2) and Harcourt (1977:375–6, 380).
17. See *C.W.* VII: Preface to the French edition, esp. pp. xxxii, xxxiii, and Chapter 19; Kalecki (1939a); Robinson (1951:135–6) and Harcourt (1987a).
18. This is discussed in greater detail in Kriesler (1996).
19. All unacknowledged quotations are from *C.W.* VII.
20. Marris (1996) examines this proposition more carefully.
21. See Thomas (1996).
22. *C.W.* VII: 262 and XIII: 369, 391. On this, see also Erdos (1977:234); Kahn (1984:134); Steindl (1985:111); and Meek (1967:187).
23. These are discussed in Howitt (1996) and in Kregel (1996).
24. The title and analysis of this chapter give the lie to those economists who argue that Keynes derived unemployment by assuming that money-wages are fixed. This is clearly nonsense.
25. Keynes's discussion of the influence of changes in money-wages on employment has already been noted. On the liquidity trap he comments: 'But whilst this limiting case might become practically important in the future, I know of no example of it hitherto' (*C.W.* VII: 207).
26. In fact, Kaldor notes four limitations, but one of these, Keynes's failure 'to deal with all the problems connected with international or interregional trade' (Kaldor 1983b: 83), is thrown into doubt by Davidson (1996); while another, that Keynes's use of static analysis did not allow him to incorporate history and causality, are rejected by most of the literature, especially Joan Robinson.
27. See also Marris (1996).



28. See, for example, Kalecki (1939a and 1954:63).
29. See, for example, Kalecki (1954:73) and Kriesler (1996).
30. See Kriesler (1996: section 5).
31. See Sawyer (1985:188–9, 192–3). It should be noted that in a posthumously published paper, Kalecki (1971a) allowed a role for trade unions to influence the mark-up and hence real wages,
32. See, for example, Kalecki (1954: ch. 3); Kriesler (1987: ch. 7, and 1996).
33. One of the reasons Joan Robinson has argued that Kalecki's analysis of effective demand is more satisfactory than that of Keynes, is Kalecki's use of these schemas (Robinson 1964:95–6; see also Kriesler and McFarlane 1993; and Sardoni 1996).
34. For a more detailed discussion of the reasons why Kalecki did not believe that investment was interest-elastic, see Sawyer (1985:50).
35. This assumption is made explicitly 'by assuming tacitly that the supply of money by the banks is elastic', (Kalecki 1971b: 159f). The mechanism of money creation is set out in detail in Kalecki (1933:93–8). Keynes, in his work after *The General Theory*, seemed to be coming around to this position – see Dow (1996) and Sardoni (1996).
36. See Kriesler (1988a).
37. See Kriesler and McFarlane (1993).
38. See Kriesler (1996).
39. See Kriesler (1988a).
40. Although he does cover himself in Chapter 2, when he sets out the classical postulates.
41. The unimportance of financial markets and the rate of interest in Kalecki's work can be gauged from the fact that the collection of essays which he chose as representing his 'main contributions to the theory of dynamics of capitalist economy' (Kalecki 1970: vii) contains no essays on the determination of the rate of interest, or of finance in general, except for the important paper on 'entrepreneurial capital and investment'.
42. Subsequently, in 1939 Keynes acknowledged statistical evidence of the likelihood of constant returns, and, therefore, that there is not necessarily an inverse relationship between real wages and employment. In that same article, Keynes (1939) also acknowledges that the analysis of imperfect competition (including Kalecki's analysis) may play a more important explanatory role than he had previously admitted.
43. This does not mean that he never allowed a role for uncertainty. For example, in his 'The Principle of Increasing Risk' (Kalecki 1937a), he analyses the problems caused by risk for investment. However, there is no actual analysis of uncertainty, it is simply assumed to be dependent on the size of the investment.
44. See Howitt (1996) and Kregel (1996).
45. See Howitt (1996) and Hoover (1996).
46. The importance of starting from imperfect competition for a second edition of *The General Theory* is discussed in Marris (1996).
47. The links between distribution, consumption and effective demand are discussed in Thomas (1996).
48. Dow (1996) argues that the incorporation of endogenous money would not necessitate significant changes to the heart of the Keynesian system, and would, in fact, improve it.
49. See 'The Principle of Increasing Risk', reprinted in Kalecki (1939b).

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**Part II**  
**Kalecki**

# 7

## Michał Kalecki on Capitalism

Peter Kriesler and Bruce McFarlane

(Reviewing: J. Osiatynski (ed.), *Collected Works of Michał Kalecki*, Vols I and II, Oxford, Oxford University Press, 1990 and 1991)

### 7.1 Introduction

The appearance of a definitive English Language collection of Kalecki's works, edited by Jerzy Osiatynski, is an event to be warmly welcomed. The collection makes available articles previously published in obscure places, as well as important articles which have been translated from the Polish and Italian. They thus make many of Kalecki's major contributions available to a general audience for the first time. These first two volumes of a projected seven-volume set deal with topics which throw light on capitalist dynamics. They begin with pre-World War II papers stemming from Kalecki's reaction to the Great Depression and close with his articles in the *Economic Journal* of 1962 and 1968 on growth processes of the modern capitalist economy, as well as the posthumously published *Kyklos* paper about the nature of class struggle, and the first English publication of a joint paper on the possibility of reform in capitalism, 'Observations on the "crucial reform"'.<sup>1</sup>

Kalecki's contributions to economics cover nearly the whole range of economic analysis, with widespread interests from the economics of capitalism, socialism and less-developed economies, to insights into political theory. Kalecki was one of the founders, with Ragnar Frisch, of the mathematical theory of economic dynamics and the trade cycle, with both contributing important insights in 1933 (Frisch, 1933; Kalecki, 1933). His contributions to the theory of effective demand were of such importance that there are still arguments as to whether it was Keynes or Kalecki who first developed the analysis. Although this is not the appropriate place to judge the debate,

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it does indicate the pivotal role Kalecki played in developing the contemporary theory of employment and growth. 'Money and real wages' (originally published in 1939, reprinted in *Works*, Volume 2, pp. 21–50) remains one of the most clear and outstanding statements of the principle of effective demand, with its refutation of the argument that a reduction in wages is the cure for unemployment. Rereading the paper, more than 50 years after its original publication, the reader is still struck by its vision, while its central message remains as relevant today as when it was originally written.

Kalecki's analysis of pricing and imperfect competition has been praised by Joan Robinson, one of the founders of the theory of imperfect competition, as having 'transformed the highly academic theory of imperfect competition into a realistic account of the formation of prices' (Robinson, 1971, p. 89).<sup>2</sup> His contributions to our understanding of the role of the state within the economic sphere represent original efforts in the realms of both political economy and political science.<sup>3</sup>

However, it is not the list of contributions to economic theory which represents Kalecki's greatest achievement. This is to be found within his vision of economic society and its laws of motion, and with his overwhelming concern with social justice and the alleviation of poverty. His method of looking at economies, and then trying to model what he *saw* there, rather than relying on general theories, explains why he was able to open a new conceptual framework for the understanding of actual economies. Kalecki concentrated on the basic structural characteristics of economies. As not all economies had the same structural characteristics, he focused on what he regarded as the key ones.<sup>4</sup>

It should be said at the beginning of this review that Osiatynski has captured well the freshness of Kalecki's early work and the major contrasts with the analytical techniques and 'vision' of J. M. Keynes and of more orthodox economists. On display, too, are the deep insights of the famous Polish economist in his mature years concerning the destabilising tendencies he discerns at the heart of a modern Western economy.

Also apparent in these collected papers is Kalecki's outlook, rooted in a background of teenage poverty and political consciousness. For all his contributions to a 1930s Cambridge-style mixture of imperfect competition theory, effective demand theory, discussion of financial capitalism and untangling of growth and cycle, Kalecki remains very different in style to the Cambridge tradition of the 1950s and 1960s. It is, in fact, essential to the understanding of the volumes under review to locate Kalecki in his background as a central-European Marxist and democratic socialist devoted to a study of the 'contradictions' of capitalism. While he was self-educated in economics, Marx's theory of expanded reproduction, Rosa Luxemburg's analysis of inadequate market outlets and criticism of Say's Law, and Tugan-Baranovsky's discussion of inter-sectoral relations during a process of economic growth formed the intellectual background to his thinking.<sup>5</sup> From these he developed the

subject matter of his studies on capitalism, namely, contradictions which manifested themselves in persistent excess capacity, self-generating business cycles, stagnation tendencies and labour unemployment, the reserve army of the unemployed, as intrinsic to the functioning of the system.

A great deal of this is far from the spirit of both Keynes and, particularly, the neoclassical/Keynesian synthesis. There is then a sense in which the admirable efforts by Klein, Joan Robinson, Feiwel and others to claim Kalecki's priority over Keynes' *General Theory* in setting forth a framework to 'lift the fog' (in Joan Robinson's words) is a touch superfluous. However, like Keynes, Kalecki's models were certainly a product of the Great Depression, a body of ideas that reflected the fear of a post-war depression. Here Kalecki's concerns were similar to those of Fellner, Alexander and others who strove to mitigate the impact that such a depression would have on a long-suffering public—although Kalecki's concerns were to transcend the depression. Kalecki saw that, even outside a depression, there are serious sociopolitical constraints on full employment (Kalecki, 1943), and that the maintenance of full employment would require a permanent budget deficit (Kalecki, 1945).

Before moving on to Osiatynski's treatment of Kalecki's dynamics, a word is in order about Kalecki and Cambridge, as this is the emphasis that readers of this journal may expect to see as a result of Joan Robinson's 'Kalecki and Keynes' (Robinson, 1975), and elsewhere, as well as the various remarks made by Kahn and Kaldor. Austin Robinson (1949, p. 42) in his evaluation of Keynes raised the 'Kalecki issue' in typically candid style:

I do not think it is necessary if one would advance Keynes' claim to greatness, to argue that we might not have reached the same destination by other routes at a later date. To name only one other, Michał Kalecki was independently approaching the same goal.

It seems to us that Kalecki's contributions to Cambridge economics (including inputs arising from his visits in 1937–1938, 1955 and 1969) have been important. These would include his linking of the analysis of effective demand to the analysis of imperfect competition, the restoration of a fundamental role to distribution, and his analysis of the cycle. Kalecki's contribution enabled people to look at 'Keynesian economics' without the confusions caused by the 'hangovers' of the older neoclassical theories of the market and of factor income distribution, remnants of Keynes's unfinished 'struggle to escape'. Kalecki forced the student of political economy to draw a sharp distinction between those economists who studied Keynes because of his insight into effective demand and the instability of capitalism,<sup>6</sup> and those who, instead, sought to integrate Keynes's ideas into neoclassical frameworks (Samuelson, Hicks and Modigliani in particular). Kalecki completely undermined the criticism of Keynesian analysis over the possible omission of 'real balance' or 'Pigou' effects, and the argument that downward price flexibility would

restore full employment owing to wealth effects. According to this argument, wage reductions, by causing price reductions, will lead to an increase in the real value of monetary assets. If wealth is taken as a determinant of consumption, then this will lead to an increase in consumption which will eventually restore full employment. In ‘Professor Pigou on “The classical stationary state” a comment’ (originally published in 1944, reprinted in Volume 1, pp. 342–3) Kalecki showed that this mechanism was unlikely to operate satisfactorily. To the extent that the stock of money is backed by liabilities to the private sector in the form of credits to firms and individuals, deflation will merely redistribute income from borrower to lender, therefore actually reducing consumption. It is only on that part of the money stock for which the offsetting liability is held outside the private sector, i.e. backed by gold or government securities, that the real balance effect can operate. However, this will be offset by the potential for insolvency arising from the increased real burden of private debt, as well as the resultant impact on expectations which is likely to swamp the effect on consumption:

If in the initial position the stock of gold is small compared with the nation’s wealth, it will take an enormous fall in wage rates and prices to reach the point when saving out of full-employment income is zero. The adjustment required would increase catastrophically the real value of debts, and would consequently lead to wholesale bankruptcy and a confidence crisis (Volume 1, p. 343).

Another ‘Cambridge’ connection from the analytical point of view, which emerges in a number of places in Volume 1, is Kalecki’s discussion of the problem of ‘realisation’ of profits (to use Marx’s term). Here the analysis runs as follows: an autonomous increase in the level of investment expenditure will govern savings through an expansion of the capital-goods sector in a situation of unemployment and excess capacity. This will increase capitalist income. Investment will tend to govern income by increasing total profits—a line of thought suggested in Keynes’s *Treatise* and developed further in the Cambridge theory of distribution of Kaldor, Joan Robinson and Pasinetti.

The adjustment of savings to an autonomously given level of investment follows naturally from Kalecki’s use of the Marxian department schema.<sup>7</sup> As Joan Robinson pointed out on several occasions, this was the same thing as Kahn was trying to do when he elaborated his employment multiplier, in 1930–1931, drawing a dividing line between the capital goods sector and the consumer-goods sector (see Robinson, 1975, p. 96).

## 7.2 Biographical Note<sup>8</sup>

Kalecki’s career and the connections between his research interests and his occupational profile have been well documented by the editor Jerzy Osiatynski, and the relevant sections supplement and expand what we know from the



previous major biography (Feiwel, 1975). The essential phases of Kalecki's career may be briefly summarized. He was self-taught in economics, being familiar with some of the Eastern European Marxian literature as a student. His early formal study as an engineering student at the Warsaw and Gdansk Polytechnics was interrupted by family poverty. After a period as an economic journalist, Kalecki was, from 1929, employed in the Warsaw Research Institute for the Study of Business Cycles and Prices. Here his empirical work was mainly concerned with industry studies and with macro-economic trends. In 1933 he published *An Essay in the Theory of Business Cycle* (in Polish); a paper also delivered to the international Econometric Society in 1933, and published in altered form in the *Review of Economic Studies*, 1937. These interests were being pursued at about the same time as Keynes's *General Theory* was being discussed in Cambridge. His interests in these issues reflected his empirical work at the Warsaw Research Institute for the study of Business Cycles and Prices, as well as his training as an engineer and his knowledge of the building industry.

Journeying to Stockholm and London in 1936 on the proceeds of a Rockefeller Foundation fellowship, Kalecki participated in discussions concerning the Great Depression and was involved in the development of techniques for analysing macro-economic instability. At the end of 1936 Kalecki resigned from the Institute as a protest at the dismissal of two of his colleagues. After a period as researcher at Cambridge (mainly on price trends and 'average-cost pricing') he took up a post at the Oxford Institute of Statistics where he became a dynamic force and played a leading role in guiding research. He worked closely with Balogh, Mandelbaum Martin, Burchardt, Schumacher, Steindl and other refugees from Nazism. Ignored in the discussions as to a suitable replacement as Director for the retiring Bowley, he decided to leave England (with apparent reluctance).

A new phase opened with a stint at the International Labour Organisation in Montreal and, from 1946 to 1955, with a post as Deputy Director of Economic Affairs of the UN Secretariat where he (with his staff and other teams) produced some notable World Economic Reports and studies on ways to avoid post-war inflation. Forced to resign from the UN in 1954 as a result of McCarthyism, Kalecki returned to Poland. After 1955, Kalecki's work was mainly directed at helping to improve planning methods and techniques in socialist Poland, although he continued to work on capitalist dynamics and published major works which appear in Volumes 1 and 2 of the *Works*.

During his time at the UN, Kalecki became interested in problems of developing economies and during that time, as well as after leaving, he advised the governments of many developing countries. His writings on these areas are to be the subject of Volume V of the *Collected Works*.

### 7.3 Kalecki's Early Writings on Capitalism

Those aspects of Kalecki's approach which show his Marxist insights most clearly are the early articles of the 1930s, reproduced here in Volume 1 of

the *Collected Works*. It is of interest to note that these early works were not published in academic journals, appearing in socialist papers and popular journals, and contain Kalecki's analysis of the 'continuing crisis of capitalism'.

In 'Mr Keynes' predictions' he offers an alternative 'vision' as to why the UK crisis of 1932 was prevented from worsening. While Keynes argued that this was a result of the abandonment of the gold standard Kalecki suggested that Britain's general position would depend on the inflow of gold from India and on the dangers of a further deepening of the world crisis.

In 'Is a capitalist overcoming of the crisis possible?' he criticises Cole and the Soviet economist Varga for failing to distinguish a structural crisis of capitalism from a medium-term recessionary phase of the business cycle (a distinction that many Marxist economists have failed to keep, with disastrous consequences) and, as a result, for being over-optimistic about the stability of capitalism. The recessionary phase of a cycle, he suggests, can be overcome within the framework of the capitalist system, while structural crises cannot. In fact, once external factors which might contribute to the overcoming of the crisis (e.g. a war-time boom) had run their course, the question would then arise of the social cohesion and viability of capitalist society. The decisive factor, according to Kalecki, will then be 'not the economic but the social one—the position taken by the working class' (Volume 1, p. 53).

In his 1931 article, 'The world financial crisis', Kalecki makes a prediction about the policies that will be pursued by European nations flung into inter-imperialist rivalry. In relation to France, he points out that national policy was directed towards protecting the interests of financial capital by forcing the rest of the world to deflate. In England, by contrast, following 'the suspension of the gold standard [and] the devaluation of sterling', 'the industrialist has triumphed over the banker'. While devaluation threatens the pre-eminent position of the City as banker of the Empire and much of the rest of the world, industry dreams of capturing export markets. For Germany Kalecki makes a startling prediction:

it is possible that when the agreement on the non-withdrawal of short-term deposits expires ... the "Hitlerite folk" will enter the scene and supersede the German capitalists in declaring a moratorium on foreign debts (Volume 1, p. 40).

In connection with the election of the Blum government in France, Kalecki wrote 'Lessons of the Blum experiment', which was written in the late 1930s, after Kalecki had left Poland, and was the result of a visit to France. Republished here, it is an article that one can only admire for its political insight. Apart from verification of his own treatment of money wages by statistics, this piece concerns itself with ways in which a future Popular Front government can learn from the failures of the Blum experience and develop economic policies which will have more hope of success.

The other significant article from this early batch, 'Three systems', written in 1934 is very different, as it is dealing with more abstract concerns in a novel manner. It is concerned with the general theoretical question of what the specific conditions are under which a change in money wages will cause a change in real wages and, therefore, a change in the share of wages in national income. Utilising reproduction schemas, the paper focuses on intersectoral flows. It begins with a fruitful discussion (*Works*, Volume 1, pp. 203–4) of the relations between the wages of the producer-goods sector and the surplus of the consumer-goods sector within an implicit framework of Marx's equations of expanded reproduction. In the other 'systems' constructed in the article, in sections which are already causing controversy among those who have rediscovered the piece, the author deals with the relationships, immediate and less immediate, between the interest rate, level of output, investment and the velocity of circulation of money. A complication in the interpretation here is that the Polish word for 'balance' has been rendered in the text as 'equilibrium'. In fact, what occurs in the model is a balance between flows of resources between the capital-goods and consumer-goods sectors. This is quite different from the equilibrium notion of general equilibrium analysis which relates to stocks and is static in character. Kalecki is thinking of the relationship between the wage-bill of the producer-goods sector and the surplus of the consumer-goods sector. This balance is necessary at the end of the period when the consumer-goods sector finds a market, generated in the capital-goods sector, which is just large enough to dispose of its surplus, to provide a situation where there is no unintended accumulation of inventories of consumer goods. Kalecki is interested in this relationship, as Marx was before him, and is not primarily concerned with how a neoclassical-style equilibrium is established. It is an interesting piece, in which the analysis anticipates that of Keynes much more closely than elsewhere in Kalecki's works, possibly because, as the editor notes, it is set within the equivalent of a Marshallian short period.

#### 7.4 Capitalist Dynamics

For many people, the most lasting part of Kalecki's work is likely to be his theory of how autonomous cycles are generated in the capitalist economy. Kalecki's contributions here have been absorbed by good textbook writers (Allen, 1965, ch. 8.4–8.6; Allen, 1967, pp. 369–74; Evans, 1969, pp. 383–6; Gandolfo, 1980, ch. 4, s 3.1) and comparisons have often been drawn between the Kalecki model and that of Hicks (Swan, 1950) and of Kaldor (Lange, 1941, p. 191). One important difference was that Kalecki did not rely on any notion of equilibrium and, as a result, a virtue of the Kalecki model is that it does not need to assume inherently unstable equilibria. Further, Kalecki used a mixed difference-differential equation to capture the essence of the cycle, a technique which has not been well developed in the

literature.<sup>9</sup> The theory explains the business cycle in terms of fluctuations in what, today, would be called the marginal return on investment resulting from the accumulation and decumulation of capital and from the effect of investment on income (although there are many other aspects brought in, as is explained below). The fact that Kalecki's model leads to a four-phase cycle also meant that the whole discussion has the virtue of great simplicity. In the various versions of the Kalecki model reproduced by editor Osiatynski (*Works*, Volume I, pp. 65–108; 120–38; 139–43; 235–318; 529–57) this is most clearly seen. It is also in these pages that we notice very often a quintessential Kaleckian perspective—that periodic crises emerge because 'investment is not only produced but also producing' (*Works*, Volume I, p. 554). Investment spending as a source of effective demand brings prosperity, but is double-edged because investment is at the same time an addition to capital equipment and right from the beginning of its placement it competes with the older generation of equipment, leading to excess capacity. Admirers of Kalecki have long enjoyed and benefited from the paradox that he pointed to in colourful language back in 1936–1937:

The tragedy of investment is that it calls forth the crisis because it is useful. I do not wonder that many people consider this theory paradoxical. But it is not the theory that is paradoxical but its subject—the capitalist economy (*Works*, Volume I, p. 554).

Since investment is regulated in ways mentioned above, Kalecki is often seen to have a capital-stock adjustment principle which is combined with the behaviour of business savings to trace out the path of the cycle. Whereas in Hicks's model the amplitudes are contained by a ceiling (labour and output bottlenecks) and a floor (autonomous investment), Kalecki does not ever have firms getting to the feasible peak of the boom (from the viewpoint of full employment) owing to some excess capacity hangover. Throughout most versions of his analysis, the turning point is determined by the relationship between the rate of profit and investment, as is apparent in the following passage written in 1962:

When investment reaches its top level during the boom the following situation arises. Profits and national income, whose changes are directly related to those of investment, cease to grow as well, but capital equipment continues to expand because net investment is positive. The increase in productive capacity is thus not matched by the rise in effective demand. As a result, investment declines, and this causes in turn a fall in profits and national income (*Works*, Volume 2, pp. 417–8).

The overwhelming importance of this aspect of Kalecki's 'vision' may also be seen from an innovative inclusion in the notes of a rather difficult to obtain,

but extremely important, paper by Joseph Steindl entitled 'Some comments on the three versions of Kalecki's theory of the trade cycle' (Steindl, 1981, reprinted in Kalecki, *Works*, Volume 2, pp. 597–604). This article explains how in each version of his cycle model Kalecki had different accounts of the determinants of investment, but, nevertheless, concludes that the various versions of the cycle are linked.

In all Kalecki's versions of the theory of the trade cycle, trend and cycle are indissolubly mixed. In the earlier versions of the theory, Kalecki attempted to separate 'short and long-run influences' in a manner which he subsequently found unsatisfactory:

I started by developing a theory of the "pure business cycle" in a stationary economy, and I later modified the respective equations to get the trend into the picture (Vol. 2, p. 434).

His rejection of this position was due to his later view that:

In fact, the long-run trend is only a slowly changing component of a chain of short-period situations, it has no independent entity, and the [analysis] should be formulated in such a way as to yield the trend-cum-business cycle phenomenon (Vol. 2, p. 434).

For both trend and cycle, exogenous shocks are required to stop the system arriving in a state of rest. (See Steindl, 1981, reprinted in *Works*, Volume 2, p. 604 and Sawyer, 1985B, pp. 57–8.) This is particularly important with respect to growth in capitalist economies, which Kalecki saw as relying on 'outside' factors:

It follows that in our approach the rate of growth at a given time is a phenomenon rooted in past economic, social and technological developments rather than determined fully by the coefficients of our equations as is the case with the business cycle. This is very different from the approach of the purely 'mechanistic' theories ... but seems to me much closer to the realities of the development process (Vol 2, p. 450).

A key element in all versions of Kalecki's economic dynamics is the determination of investment. Kalecki makes it clear that this part of his analysis was the one with which he was least satisfied, so that he was continually modifying it. Classical and neoclassical economists have presented an analysis in which there is a causal relationship running from savings to investment. For Kalecki, like Keynes, the direction of causality is reversed. However, there are important features of Kalecki's theory of investment which differ from those of Keynes and which need to be identified. Firstly, Kalecki made much of the distinction between the investment decision and

the resulting investment; the time lag between them, arising from the time necessary to take orders and for the equipment to be built etc, allowed for changes in 'entrepreneurial reactions'. Secondly, as a result of his work on 'increasing risk and the limitation of the capital market', he explicitly incorporated financial constraints into his analysis of investment. As a result, gross accumulation by firms out of current profits becomes an important influence on the investment decision. The other factors Kalecki identified as determining investment were changes in profits per unit of time and changes in the stock of fixed capital. Although the resulting model had similarities with the accelerator model, Kalecki was critical of the latter for three reasons:

It is well known that large reserve capacities exist, at least throughout a considerable part of the cycle, and that output may therefore increase without an actual increase in existing capacity. But whatever the basis of the acceleration principle may be, it is inadequate not only because it does not take into consideration the other determinants of investment decisions examined above, but also because it does not agree with the facts (*Works*, Volume 2, p. 285).

As an addendum to his analysis of the cycle, Kalecki stressed the importance of microfoundations. In *Studies in Economic Dynamics* reproduced here (*Works*, Volume 2, pp. 117–90) there is a section on the microfoundations of the determination of total economic activity. This has been examined in detail elsewhere (Kriesler, 1991), but here a few brief comments need to be made. After deriving the determinants of pricing and distribution in the section called 'A theory of profits', Kalecki assigns microanalysis a crucial role with his statement:

[These] factors ... will affect, not real profits, but the real wage and salary bill—and consequently the national output. If, for instance, the degree of market imperfection or oligopoly increases, and, as a result, so does the ratio of profits to wages, real profits do not change, but the real wage bill falls, first, because of the fall in real wage rates and, secondly because of the consequent reduction in demand for wage goods, and thus of output and employment in the wage goods industries ... [mark-ups] increase, but the national output falls just so much that, as a result, the real total profits remain the same. However great the margin of profit on a unit of output, the capitalists cannot make more in total profits than they consume and invest (*Works*, Volume 2, pp. 153–4).

We consider this passage to be of great importance in understanding the link between Kalecki's micro- and macro-analysis. Gross real profits are determined by the capitalists' consumption and investment decisions. When total

profits and capitalists' consumption and investment are determined in real terms, so are the levels of output and employment in the sector manufacturing producer-goods and in the sector producing the capitalists' consumption goods. Then the microeconomic factors which determine the distribution of income (such as the degree of monopoly, the mark-up, etc) will have their impact, not by affecting gross profits directly, but through real wages which will influence the level of national output via their impact on the wage-goods sector. Under these conditions, we see the role of the micro-factors in the same way as Joan Robinson did in her typically pithy remark:

There are two elements in Kalecki's analysis, the share of profit in the product of industry is determined by the level of gross margins, while the total flow of profits per annum depends upon the total flow of capitalist expenditure on investment and consumption ... In this way, Kalecki was able to weave the analysis of imperfect competition and of effective demand together and it was this that opened up the way for what goes under the name of post-Keynesian economic theory (Robinson, 1977, pp. 13–14).

Microeconomics, then, has a high status in Kaleckian economic analysis – there is a lot of work on the pricing and distribution models of capitalism which is separate from discussion of the level of real output. On the other hand, it seems clear from reading Volumes 1 and 2 of the Osiatynski volumes that for Kalecki the microanalysis and the macroanalysis give different information about the workings of the economy but that the integration of the two yields even more information about the environment in which workers and firms find themselves and about movement in the larger economic variables, all of which affect the performance of the capitalist economy. In this way the microanalysis of pricing and distribution illuminates the determination of the shares of profit and wages in the national income, while the macroanalysis of intersectoral flows and of investment behaviour determine profits; together, both analytical structures determine the level of output.

In much of his analysis of the dynamics of capitalist economies, Kalecki utilises sophisticated mathematical techniques. However, as he pointed out in the 'Foreword to the Japanese edition' of *Theory of Economic Dynamics: An Essay on Cyclical and Long-Run Changes in Capitalist Economy*, the mathematics is not being pursued for its own purposes, but as a vehicle for the expression of ideas, with the statistics used as a check to ensure that the analysis is, at least, compatible with experience. In other words, although the structure of Kalecki's models is mathematical, using abstractions, they are stages in an attempt to build a picture of the world which is 'more realistic' than conventional theory because it gives a better idea of actual processes:

The book is full of formulae, statistical data, scatter diagrams, and the like. This may mislead the reader into believing that the main subject

of the book is the application of mathematics and statistics to economic analysis. This, however, is by no means the case. Mathematical formulae are applied merely in order to shorten the argument and to make it more precise. And the statistical data are used to show that the theories arrived at do not contradict the facts, and thus that they provide a possible interpretation of the phenomena in question.

The actual purpose of the book, as indicated by the subtitle and the chapter headings, is to build a coherent theory explaining the cyclical and long-run changes in the capitalist economy (*Works*, Volume 2, p. 207).

We see here Kalecki's concern with showing how *actual* economies operate, with the statistics being utilised as a check to ensure that the theories have some relation with the system being analysed. Kalecki's method was first to look at the world, and then try to model what he saw.

## 7.5 The Economic Role of the State

An outstanding divergence between Kalecki and Keynes is in their respective understandings of the role played by the state in capitalist societies.<sup>10</sup> In 'Political aspects of full employment', originally published in 1943 and reproduced here by Osiatynski (Volume 1, pp. 347–56), Kalecki elaborates why, in the liberal democracies, governments will not, for long periods, be able to maintain full employment; instead they will concentrate on ironing out cyclical fluctuations. In stressing the importance of the distinction between achieving full employment and maintaining it, Kalecki laid the foundation for ideas which later came to be seen as the political business cycle. This was not the first time that Kalecki had expressed these views. As explained earlier, the first part of *Collected Works*, Volume 1 (pp. 15–62) opens with a series of shorter pieces that Kalecki wrote in the period 1929–1932 and later some articles on economic policy written during 1936–1943. After perusing these early works one must commend the editor for their inclusion, as there is a wealth of insight to be found in these pages about the workings of the capitalist state, much more than had been reached in both orthodox economics and the views of Keynes by that time.

In the article on the political trade cycle (Kalecki, 1943) as well as in 'Three ways to full employment' (Kalecki, 1945) the author argues that the sector of society he dubs the 'captains of industry' will be averse to government spending on welfare and other expenditure which is primarily aimed at maintaining full employment. A number of reasons are given by Kalecki, both here and in other articles republished in the same section. One idea which figures prominently is that industry dislikes government interference in the problem of employment generation, arguing that in a free enterprise system the level of activity and employment depends on the 'state of business confidence' and therefore anything which erodes this confidence must



be avoided by governments. If the state could, through its own expenditure, maintain the level of employment, then business would lose a powerful device for controlling the militancy of the labour unions. 'In this situation a powerful alliance is likely to be formed between big business and rentier interests, and they would probably find more than one economist to declare that the situation was manifestly unsound' (p. 355) and vigorously oppose a general state policy of deficit financing and promote the doctrine of 'sound finance' which aims to make employment levels depend on the state of confidence. (When Kalecki revisited Britain in 1955 as part of a Polish Economic Mission, a prominent British capitalist complained to him: 'you saddled us with the Full Employment policies and ran away.')

While industry opposes government expenditure on many types of particular projects, on the grounds that they might compete with the private sector and limit its opportunities, Kalecki points out that it is another story when it comes to spending on social overhead capital or other projects which directly enhance the profitability of enterprises. Indeed, the economic role assigned to the state by business leaders, in the face of various episodes of unprofitability, is for this kind of expenditure to be stepped up. In the article, also published in this section under the title of 'The problem of effective demand with Tugan-Baranovsky and Rosa Luxemburg', Kalecki raises the issue of state procurements of armaments as a way of plugging the gap in effective demand. This point had been mentioned by Luxemburg as a possible substitute for enforcing new market outlets on colonies, although she did not press the point to the limit. Kalecki develops it much further in this article (in the process correcting her confusion between government expenditures financed by taxes on capitalists and deficit financing, and those financed by indirect taxes or income tax on workers who will tend to spend what they earn). He also comments, in the piece on a fascist society, 'Stimulating the business upswing in Nazi Germany', that the state is able to suppress the labour unions through terror, so that armaments tend to be used directly to boost effective demand, and need to be used so as a substitute for the denied increases to the workers of wages and higher consumption standards.<sup>11</sup> Kalecki considered the impact of such expenditure in a number of articles written over his lifetime. In 'The impact of armaments on the business cycle after the Second World War, (originally published in 1955, reprinted in *Works*, Volume 2, pp. 351–72) he examined the impact of government expenditure on armaments on employment. In the case of armaments expenditure financed by an equal increase in tax, Kalecki showed that the final effect on output depends on which class the burden of financing the expenditure falls. However, regardless of the source of finance, such expenditure will not have a long-run impact on the economy, as it will not stimulate investment. Only if armaments expenditure is financed by a budget deficit can it postpone a downswing in the business cycle, but even then, only for as long as the expenditure and the deficit are increasing.

In this case, armaments expenditure can provide an exogenous increase in effective demand. However, Kalecki sees political limitations to governments spending their way out of crises in this manner:

Let us note the fact that in nearly all capitalist countries every countercyclical intervention and every increase in government expenditure always take place in the face of very strong opposition from various groups and representatives of various doctrines in the capitalist camp (Volume 2, p. 361).

Following this passage, which is reminiscent of the argument of 'Political aspects of full employment', and which Kalecki supports with examples from recent American experience, he concludes:

How do capitalism's prospects look today in the light of the above? Considering the present economic policy of monopoly capitalism, it seems that this is a system which will not break down of its own accord, which will not face catastrophe, but which will also not develop, remaining a system which bases its existence on patching holes during a crisis only with the help of armaments, a system which can develop only at a very slow rate. This is seen in the fact that a large part of its outlay is devoted to unproductive ends (Volume 2, p. 362).<sup>12</sup>

A point to consider about the role of the State in this context is its aversion to raising mass consumption standards as a way out of the slump, an aversion which is also obvious in liberal democracies. Kalecki points out that, although this process is generally favourable to aggregate profits, it is spurned by governments which are under business pressure. The reason he gives here is not wholly convincing, but it carries at least some conviction. Kalecki brings in the power of ideology. The capitalists, through their influence with the media and with the state cadres, are able to 'sell' the high moral principle that 'you shall earn your bread in sweat', unless you have private means. So, the cause of failure is assigned to individual agents, thereby absolving society and the state from any responsibility. Behind all these comments one can detect Kalecki's view that the state is forced to prevent disorder in the wake of big social and political changes which are deemed undesirable from the capitalist point of view. In a prolonged boom, the state apparatus discerns these changes to be the growth of self-assurance and consciousness of the labour unions, increased industrial action to achieve improved conditions, and threats to productivity in the forms of absenteeism and restrictive trade practices. There is also the danger that, with a shrinking share of total profit in national income, a competitive struggle will break out between firms as each tries to increase short-term profits at the expense of others, destabilising the economy through the increase in bankruptcies. In this case,

the state will have an active role to maintain stability and may even have to sacrifice the interests of some of its traditional supporters.

So, whereas Keynes tended at times to see the role of the state as that of a neutral referee, Kalecki adopts the Marxian perspective that the autonomy of the state is only relative to the power of individual factions of the capitalist class—an idea which has been rediscovered by the ‘Virginia School’, though within an individualistic rather than a class framework. Therefore, according to Kalecki, state activity to produce and reproduce the class relations of capitalism is part of the very structure of the system. In such a system, where production takes place for profit and for production’s sake, there is nothing absurd or irrational about a state policy of massive armament production. Far from being short-term *ad hoc* corrections to market imperfections, state expenditures should be seen realistically for what they are – expenditures which lead to long-term structural changes in the capitalist system in a way that consolidates, not merely the material conditions of the capitalist economy, but also the necessarily related social basis of class power as well. Kalecki turned his attention to these forces as they had developed between 1943 and 1970 in his last published article, ‘Observations on the “crucial reform”’, written with a Polish colleague from the Polish Academy of Sciences (Kalecki and Kowalik, 1971, translated and reprinted in *Works*, Volume 2, pp. 467–76). Even the title of this latter paper shows its link to the conclusion of Kalecki’s 1943 work:

Full employment capitalism will, of course, have to develop new social and political institutions which reflect the increased power of the working class. If capitalism can adjust itself to full employment, a fundamental reform will have been incorporated in it. If not, it will show itself an outmoded system which must be scrapped (Volume 1, p. 356).

The question in 1970, therefore, was whether the ‘fundamental’ or ‘crucial’ reform which Kalecki felt was necessary to ensure the stability of capitalism had occurred. The immediate point on Kalecki’s mind had been the extent to which the economic and social roles of the state had been changing in both the socialist and capitalist systems. In relation to the latter, Kalecki’s article argued that a long boom had occurred, but at the cost of creating many moral dilemmas in society, dilemmas which alienated many students and marginalised sectors of the population such as immigrant workers, some sectors of women workers, and parts of the Afro-American population in the USA. Moreover, the reliance on exogenous stimulants and expenditures to solve problems of effective demand had required state controls of a kind that had been very costly in social terms. While Kalecki seemed to concede that capitalism has achieved a permanently higher level of stability owing to the extension of the economic role of the state, nevertheless he felt that this merely changed the nature of the social contradictions that 1970s

capitalism was grappling with. The essence of the system, taken as a whole, had remained unchanged.

## 7.6 Kalecki's Contemporary Reception

One of the most interesting questions is the issue of how Kalecki's analysis was received in the late 1930s. Here the comments and reviews of Marxists, of Keynesians and of mainstream economists will be relevant, and a combing through of Osiatynski's notes is rewarding from this point of view, even if the underlying intention to introduce and explain Kalecki to established economists outside Poland occasionally becomes too obtrusive.

Among Western Marxists, an immediate and enthusiastic review was forthcoming from Maurice Dobb, a review (Dobb, 1939) which in its title, 'An economist from Poland', and its content, set the stage for introducing Kalecki to wider circles in Britain rather than in Cambridge alone. Dobb wrote:

These studies mark a sharp break with economic tradition in two respects, both of which bring them into closer touch with problems of contemporary capitalism, than traditional economic writings.

First, he starts by assuming that capitalists are always monopolists in some degree. This leads him to treat the capitalists' share in the national income as determined entirely by what he calls the 'degree of monopoly' and to an ingenious explanation of why the share of labour in the national income has remained so surprisingly stable, as its seems to have done.

Secondly, he devotes special attention to what Marx called the problem of 'realisation of surplus value'. Here his ideas have some affinity with those of Rosa Luxemburg, as he himself points out.

One of the essays is devoted to an analysis of the cause of economic crises by a method similar to that of Mr Keynes, but handled in such a way as to place the main emphasis on the falling rate of profit as the inevitable cause of crises under capitalism.

The last lines of Dobb's comment are important and it is surprising that they were omitted by Osiatynski in Volume 1 under review.<sup>13</sup>

Among the other, more interesting reactions was that of Marschak, who conducted seminars on Kalecki's writings at Oxford in the late 1930s and was very laudatory of the clarity of Kalecki's contribution to the issues of economic change. Shackle's enthusiasm for Kalecki's work is apparent in his review of *Studies in Economic Dynamics*:

Any economist who is asked "What can economic theory do by way of explaining concrete facts?" would do well to point out these essays (Volume 2, p. 536).

This reminds us of a well-known remark of Shackle's that he had edited some of Kalecki's drafts with a view to stylistic improvement, in return for an exposition of 'Keynesian economics' and that this had been an unequal exchange, since he had previously experienced great difficulty in understanding the *General Theory*.

In a letter held by Feiwel, Galbraith has also recorded what a breath of fresh air he found Kalecki's writings to be. Any reader who cares to look up the name of Steindl in the index of this Osiatynski collection will also gain insight into Kalecki's importance for unorthodox economists in the period 1939–1959 and, indeed, subsequently. The reaction of these economists shows that recognition of the importance of Kalecki's work is not just a recent phenomenon.

As for Keynes, the correspondence published in these volumes between Keynes and Kalecki, and between Keynes and his circle about Kalecki, reveals that Keynes had a patronising attitude to the Polish economist and a closed mind about the methodology that Kalecki used to link income distribution to growth, and about Kalecki's analysis of the determinants of technical progress and related matters. Joan Robinson, in these letters, tried hard but unsuccessfully to get Keynes to see the points Kalecki was driving at. It is clear in retrospect that to compare the two men is impossible—it is a case of comparing chalk with cheese.

Kaldor, in 1940, was also relatively unsympathetic to Kalecki, but from the correspondence published here it seems he was acting under heavy pressure from Keynes. Later, in 1956, though quite clearly influenced by Kalecki's work, Kaldor attacked the basic Kaleckian procedures surrounding the issue of the degree of monopoly and the mark-up in industrial pricing (Kaldor, 1956). The main complaint was that Kalecki was either deriving the degree of monopoly from the elasticity of the average revenue function (in which case it was a neoclassical argument), or deriving the mark-up directly from the degree of monopoly—in which case the approach was tautological. Both of these views have been answered by Kaleckians, notably Riach (1971) and Kriesler (1987). Later in life Kaldor seems to have re-read Kalecki and became prominent in moves to nominate him to Stockholm in connection with the use of Nobel funds to award outstanding economists. The posthumously published 'Personal recollections of Michał Kalecki' (Kaldor, 1989) is a warm personal tribute full of admiration.

## 7.7 Michał Kalecki's Economics Today

The first aspect that can be considered under this heading is Kalecki as a classical economist raising classical questions of dynamic accumulation. This is important in the context of Joan Robinson's attempts, admirably supported in the books of Jan Kregel, to use Kalecki as a bridge between classical economics and that of the Kaldor–Robinson type. Kalecki's vision

of late capitalism as being persistently burdened by unused capacity and unemployment which relied on exogenous boosts of effective demand to get out of crises, although shared by Joan Robinson, may be contrasted with Kaldor's view of late capitalism's inherent stability.

At the same time, Kalecki's method strongly reminds us of the strengths of a surplus approach, while allowing the incorporation of excess capacity and effective demand (Halevi and Kriesler, 1991) while the usefulness of Kalecki here is also mentioned by the editor of the Kalecki papers (Osiatynski, Volume 2, 1991, pp. 567–80).

The relationship between Marxian economics and Kaleckian analysis is also highly relevant.<sup>14</sup> In his editorial Introduction, Osiatynski reminds us that the Marxian method remained vital throughout Kalecki's life:

Michał Kalecki's works, said Oskar Lange ... "stemmed from the Marxian theory of reproduction; he did not treat it dogmatically, however, but developed it". The economics which Michał Kalecki taught is political economics in the genuine sense of the term, a science which has us looking beyond economic values and the interrelationship between them, for social relations, class or group interests, and their conflicts. For the contradictions of monopoly capitalism, as well as the essence, forms, and the effects of the capitalist government, can be understood only when the analysis of economic mechanisms is strictly linked to the analysis of social forces. Kalecki used this broad Marxian methodological directive in his studies of capitalism as well as of the centrally planned economies and of the developing countries (*Works*, Volume 1, p. 3).

Kalecki's most explicit discussion of this method is in 'Econometric model and historical materialism' (Kalecki, 1965).<sup>15</sup> After a clear statement of Marxian methodology embodied in the materialist view of society, Kalecki outlines its implications for economics and econometrics. According to historical materialism, 'the process of development of society' is by the productive forces and productive relations, which influence 'the other social phenomena such as government, culture, science and technology, etc.', with important feedback effects. As long as productive relations and the availability of natural resources remain unchanged, then the economy will not be subject to structural change, and so economics and econometrics can model society in terms of functional relationships. Kalecki's analysis of historical materialism stresses the interplay of continuity in economic relations interrupted by discontinuities brought about by changes in productive relations. Structural change brings with it new social institutions and, as 'the institutional framework of a social system is a basic element of its economic dynamics (Kalecki, 1970, p. 311), this has important implications for the analysis of economic society. In other words, Kalecki shared with Marx a view as to why economies change and, as a result, different

economic systems require different economic analyses, though their general methodologies remain the same. This also explains one of their important differences. The new stage of development of capitalism, since Marx's time, requires additional analysis. In particular, the increased concentration and monopolisation changed the nature of many of the important economic relations, and this had important implications for the nature of the 'realisation' problem and for the determination of prices.

Kalecki never discussed the labour theory of value and, as a result, there has been some question of whether he saw his analysis of prices as a substitute or a complement. Perhaps the most appropriate verdict on this question is given by Dobb:<sup>16</sup>

one might say that, while the classical Marxian explanation for the emergence of surplus-value continues to apply to modern capitalism, as to its earlier stage, the influence of monopoly enters in as an additive element in the stage of monopoly capitalism (Dobb, 1973, pp. 269–70).

Finally, there is the problem of the use of Marxian reproduction schemas in Kalecki's analysis. The pattern that emerges from these volumes is that Kalecki uses them when discussing sectoral growth patterns, to highlight the monetary aspects of investment, and to identify when too small or too large a volume of capital-goods has been produced in a given period. In other words, Kalecki uses the schemas as the cornerstone of his analysis of effective demand.<sup>17</sup> Throughout Kalecki's writings on capitalism, this analysis is of central importance in highlighting the failure of effective demand to secure full employment, an idea which was much influenced by the works of Rosa Luxemburg.

Kalecki's use of the reproduction schemas is reminiscent of the growth models associated with Harrod and Domar, a comparison noted both by Kalecki and by Joan Robinson.<sup>18</sup> Although Kalecki showed that the fundamental equation of the Harrod–Domar model could be derived from the reproduction schemas (Kalecki, 1968A, p. 463), he was quite critical of their model. In particular, he felt that any deviation from the growth path will lead to stagnationist fluctuations, rather than to fluctuations around a trend growth path (Kalecki, 1962, p. 412).

There is also relevance in Kalecki's rigorous and empirical approach for contemporary Marxian economics – an escape from dogmatism – for how Marxian research should really proceed. In this connection Rowthorn has noted that Kalecki's use of capacity utilisation has greatly strengthened the Marxian version of effective demand theory, and the Marxian discussion of the relationship between profits and investment, and between investment and 'realisation' (Rowthorn, 1981, pp. 11–13, 30). He extended Kalecki's analysis by considering how the stability of capitalist economies (and structural shifts) can be analysed *via* the interaction of the rate of profit as derived

from a profit curve (with the slope and position determined by costs and the degree of excess capacity) and the relation between capacity utilisation and demand as depicted on a 'realisation' curve (with slope and position given by saving and investment behaviour) (Rowthorn, 1981, pp. 15–18).

The development of a post-Keynesian school and the proliferation of journals pursuing its interests inevitably brings Kalecki into the picture; in fact, some prefer to speak of a post-Kaleckian school. Osiatynski has referred at some length to the growth of recent interest from this quarter in both Kalecki's major works and in some of the earlier pieces (Osiatynski, Volume 2, 1991, pp. 578–82). The special elements which attract the attention of post-Keynesians are the ones which are incorporated in his modelling of contemporary capitalism: the dual role of investment, the use of imperfect competition, and the linking of pricing, investment and growth. It is the coherence of this approach which allows Kalecki to be fitted more easily into the many and various strands of post-Keynesian thought (Sawyer, 1985B, pp. 1–4, 22–23). Further, as Sawyer has emphasised (*ibid.*, p. 23), such an approach 'offers liberation from the sterility of the Keynesian-Monetarist debates over the role of price flexibility and degree of price rigidity in the system, and offers an explanation of unemployment which does not rest on failure of prices to adjust'. At a time when serious imbalances in the economy are seen as mere market imperfections and when unemployment is seen as resulting from 'failure to contract at the offered wage', a reading of Michał Kalecki is clearly a useful antidote to such flights of fancy.<sup>19</sup>

Osiatynski would surely agree with this, but wants Kalecki 'modified' for conditions of present-day capitalism. Assuming he does not want Kalecki to be modified in the direction of modern general equilibrium analysis, such a suggestion should clearly be taken seriously, and is quite in tune with Kalecki's general approach.<sup>20</sup>

This task is made easier by the richness of Kalecki's work: he has laid down a trail for new research in a number of areas. Some of this work has already proved to be of value: for example, Asimakopulos and Burbidge (1974) on the short-period incidence of taxation, and the more recent contributions on tax analysis of Laramie (1991) and Mair (1984, 1987); while segments of it have the potential to fill in gaps in the Kaleckian project.

The areas needing new work to fill out a Kaleckian view for today's readers seem to include the following:

(a) to give a more historical dimension to the process of capital accumulation when the situation in a particular country is being analysed; (b) to explore further the implications of different combinations of effective demand/excess capacity by following through the implications of Rowthorn's extension of Kalecki's analysis (discussed above); (c) incorporation of the analysis of the labour sector into 'Department' analysis, something needed for all 'disproportionality theory' of the Tugan-Baranovsky type, and an aspect which is almost neglected in Kalecki's work; (d) to



develop further the theory of investment determination; (e) given its centrality to capitalist structuralist dynamics, to show in a more satisfactory way the relation between trend and cycle and to clear up the real role of 'external shocks'; (f) to develop Kalecki's work on the impact of the financial system, possibly along the lines suggested by Minsky (1982, p. 72) that 'an essential attribute of modern capitalism is that positions in both capital assets and investment in process are financed by a combination of debts and commitments of the liquid capital of the . . . corporations'; (g) to develop the implications of the increased internationalisation of capital associated with its much greater mobility.

While these may be described as 'gaps', it should be realised (and editor Osiatynski says this a few times) that Kalecki was a pioneer and such gaps were inevitable.

More generally, there is the problem of changes in world economics and politics since Kalecki's death. Major directions of change in modern capitalism which need to be incorporated into a Kaleckian framework for contemporary analysis include the growth in importance of multilateralism and transnational corporations, neither of which Kalecki wholly missed (Kalecki, 1946) but which have assumed greater importance as interdependence in the economic policies of nations has grown apace. Typically, just before his death, Kalecki published with T. Kowalik an assessment of some of the important political changes taking place in modern capitalism—as mentioned above. With socialist society already in the 1960s experiencing difficulties, for reasons set out in Kalecki's *Introduction to the Theory of Growth in a Socialist Economy* (Kalecki, 1969), he decided to ask some basic questions as to whether the resurgence of capitalist prosperity, in the rival social system, had any political basis or political fall-out.

## 7.8 Osiatynski's Notes and Editorial Comments

The notes and editorial comments, addenda, diversions and reprints of short pieces by commentators on Kalecki are entertaining, even absorbing. Osiatynski is good on the *reaction* to Kalecki's work, and the opinions about that work expressed by *eminent* economists. However, his scope is sometimes too wide, including pieces by critics that are of dubious value and barely noticing the early and warm reception by Dobb and others to which we have referred above. Some of the inclusions, however, are gems; for example, all of Steindl's letters to or about Kalecki, the material documenting Baran and Sweezy's relations with Kalecki, and Klein's opinion when Kalecki was challenged on his use of statistics in *Theory of Economic Dynamics*. Some of the short pieces are very well worth republishing for their insights and because of their inaccessibility—in this category we can put Steindl's 'Some comments on the three versions of Kalecki's theory of the trade cycle', a superb and insightful piece.

While acknowledging the great interest the notes raise, and responding warmly to the new items made available to us, still there is room for the inevitable disagreement about *emphasis*. Some readers will no doubt feel that there are just too many topics covered in the notes, that the notes to these volumes are essentially *explaining* Kalecki to a wider audience rather than letting Kalecki 'tell it as it is' with minimum intrusion, in the style of Sraffa's notes in Volume 1 of the *Collected Works of David Ricardo*. So the *Works of Kalecki*, *pace* Osiatynski, turn out to be not just 'collected Kalecki' but also a comprehensive collection of *critiques* of Kalecki, a mixture of two quite different projects. Then there is the weight to be given to Kalecki's theoretical work. Kalecki was not primarily an academic economist, he was not exclusively interested in contributing to a body of theory, but, rather, he was concerned with investigating capitalism (and socialism) in a practical way. He was a problem solver *extraordinaire*. Osiatynski at times seems to be close to this view, but it is not the overall impression one gets from reading the editorial notes in one sitting. On the contrary, just as Joan Robinson claimed, in her *Essay on Marxian Economics*, to be primarily concerned with making Marx intelligible to mainstream economists, there is a real sense in which Osiatynski has also attempted to do this for Kalecki. As a result, he has concentrated on Kalecki's theoretical contributions, and especially on their links with mainstream theory. It should however be noted that later volumes will deal with Kalecki's more applied works, as well as his works on socialism and on developing economies.

Also, he does not seem to tie together the three aspects of Kalecki outlined in Toporowski (1991): that Kalecki's social consciousness dominated his work; that Kalecki wanted to be an independent scholar; and that Kalecki revelled in his work as government adviser. This was the role which brought out the best in him, that well-known mixture of empirical work, analytical manipulation of variables and devastating conclusions. Although these may emerge in the later volumes, in the volumes under review, Osiatynski seems to be looking at Kalecki as an analytical Western economist might do: How does Kalecki compare with Keynes? With the great neoclassical writers? Does this tool of analysis of Kalecki's turn out to be as useful as someone else's? And so it goes on, over quite a few pages, not only by editorial comment but also by means of the mixture from which some are excluded and others form the proof of the pudding, while some important papers are separated from the main text and hidden in the appendices.

Such *caveats*, of course, tend to depend on the particular view one has of Kalecki's overall contribution. While some may be very happy with Osiatynski's approach, others may feel that a life-long socialist was attempting something more than the academic life—and this may, in fact come through when the later volumes are published in English. Critics and supporters alike will, however, join in thanking the editor, long-time admirer and student of Kalecki, for the assiduous compilation of much new and hitherto inaccessible material.

## Notes

1. Originally published in the economic quarterly of the Italian Communist Party, Kalecki and Kowalik (1971).
2. See also Robinson (1969) p. viii and Robinson (1953) p. 241, where she also praises Kalecki for bringing the theory of prices into touch with the theory of employment.
3. See, for example, Kalecki (1943) and Kalecki and Kowalik (1971).
4. See Harcourt's Foreword to Kriesler (1987).
5. Kalecki explicitly discussed their work in 'The problem of effective demand with Tugan-Baranovsky and Rosa Luxemburg', reprinted in Volume 2.
6. Recent examples include Harcourt (1965), Rowthorn (1981) and Wood (1975). In the older generation, Kaldor's writings on cycles and their connection with income distribution, e.g., Kaldor (1956) and Joan Robinson's early growth theory, e.g. Robinson (1952) owe a lot to Kalecki from this point of view.
7. In fact, it has been argued that Kalecki 'provides a natural bridge between Marx and Keynes and between Marxian and Keynesian economists' (Sardoni, 1987, p. 124) at the same time providing more acceptable and 'realistic' microfoundations for the analysis of unemployment and effective demand. (See Sardoni, 1987, Chapters 8–10.)
8. This section draws heavily on Osiatynski's Introduction to Osiatynski (1990).
9. See Gandolfo (1980), p. 527. Gomulka *et al.* (1990) raise some questions as to the validity of Kalecki's treatment of the stability of the trend growth rate of output.
10. For an excellent and comprehensive account of Kalecki on the relation between state intervention and economic cycles see Halevi (1975), where it is also shown that Kalecki anticipated the literature on the balanced budget multiplier.
11. This may be contrasted with Keynes' more positive views of the fascist regime's ability to generate employment, in Schefold (1980).
12. Kalecki then goes on to argue that, for these reasons, an 'ideal' socialist system will not have these problems.
13. Dobb's later view of the relation between Kalecki's analysis of pricing and Marx's labour theory of value is discussed below.
14. For further discussion of this relationship see Sawyer (1985B) Chapter 8 and Sardoni (1989).
15. It is a great pity that this important paper is not included in the two volumes being reviewed, as it gives the reader a very good guide as to how Kalecki approached capitalist dynamics from a Marxist perspective. Interestingly, in the Polish edition of the *Collected Works* it appears in Volume 5 on Developing Economies.
16. See also Sweezy (1979).
17. See, in particular, Kalecki (1968) for a succinct statement of this view.
18. See, *inter alia*, Kalecki (1962, 1968A) and Robinson (1955).
19. For an excellent discussion of Kalecki's role in the development of post-Keynesian economics, see Hamouda and Harcourt (1988).
20. *cf.* Sawyer (1985B) pp. 2–3.

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# 8

## Kalecki and Modern Capitalism

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*Collected Works of Michał Kalecki* edited by Jerzy Osiatinsky, translated from the Polish by Chester Adam Kiesel:

*Volume I; Capitalism: Business Cycles and Full Employment.* Oxford: Oxford University Press, 1990. 614 pp. \$135.00.

*Volume II; Capitalism: Economic Dynamics.* Oxford: Oxford University Press, 1991. 631pp. \$135.00.

The publication in English of the first two volumes of the collected works of Michał Kalecki (1899–1970) is a tribute to the intellectual importance of his contributions to the analysis of twentieth-century capitalism. The whole project will involve seven volumes, the first two of which deal with the capitalist economy. Most of the material contained in them is already well known to the community of nonconformist economists. The first volume assembles, for instance, the 1935 *Econometrica* article on the business cycle, which made Kalecki famous among mathematical economists, the booklet *Essays in the Theory of Economic Fluctuations* (1939), and his celebrated paper on the political aspects of business cycles (1943). We find also the complete version of his first Polish book *Essays on the Business Cycle Theory* (1933), a part of which appeared in Kalecki's selection of essays published in 1971 by Cambridge University Press. Likewise, the second volume features Kalecki's contributions to the question of full employment, written while in Oxford during and immediately after the Second World War (after a period spent at the United Nations, he returned to Poland in 1954). The centerpieces of Volume II are his classic book *Theory of Economic Dynamics*, which in the United States has been reprinted by Monthly Review Press,<sup>1</sup> along with

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Revised from *Monthly Review*, 44(2): 42–52, June 1992, 'Kalecki and Modern Capitalism', by Halevi, J. With kind permission from the editors of *Monthly Review*. All rights reserved.

the very important *Economic Journal* articles “Observations on the Theory of Growth” (1962)—a critique of the Keynesian approach to growth under capitalism—and “Trends and the Business Cycle” (1968)—a profoundly argued statement about the strength of stagnationist tendencies.

Alongside the writing which projected Kalecki into the world of academic and mathematical economics, both volumes include papers hitherto unavailable in English highlighting the strong interaction between political and economic analysis which permeated his thought over four decades. In this context, it is regrettable that the editor chose not to include, in either volume, Kalecki’s work on the war economy, published in the *Bulletin of the Oxford Institute of Statistics* during the war itself. Kalecki’s thinking always evolved with history. In the 1930s, he was interested in stressing the persistence of business fluctuations in a trendless economy, that is, in an economy showing no growth at all, as was the case in that period. In the postwar years, when new products were changing the structure of production and consumption, he concentrated on the impact of trend-like factors (such as innovations) in a monopolistic framework. In studying the economics of war financing, Kalecki pointed out the solid and quite inflexible grip of the capitalist classes on the distribution of national income, even under emergency conditions. Consequently, he favored rationing and direct intervention in physical production. The seeds of his subsequent skepticism about the actual implementation of full-employment and social-welfare oriented policies in peacetime can be traced back to the analyses conducted during the war. In other words, the writings of the war economy are part and parcel of Kalecki’s ideas about the working of capitalism in historical time.

On the whole, despite some limitations on the selection of the papers, these volumes show beyond any shadow of doubt Kalecki’s Marxist conception of history and economics. Indeed, Kalecki’s culture and outlook emanated almost entirely from the Marxian milieu of Central Europe, which stretched beyond the social democratic movements. By the turn of the century, in the German-speaking and Russian-dominated areas of Europe, Marx’s work was seen by large segments of the intellectual strata as a genuine scientific contribution to political economy, an attitude which today can be found in India and Japan more than anywhere else.

To put Kalecki’s works into perspective, we need to keep in mind the two major historical changes which deeply influenced Marxian thought prior to the First World War. The first of these changes is the emergence of the large corporation in Germany and in the United States. This meant that accumulation could no longer be portrayed as being based on the competitive tendency toward a uniform rate of profits. The cartelization of the German economy, centered as it was on a tight integration between banks and industrial groups, led to the formulation by Austria’s Rudolf Hilferding of the theory of finance capital, which, in turn, influenced the development of Lenin’s ideas about the connections between monopoly capital



and imperialism. The second phenomenon, this time correctly anticipated by Marx, was the growth and specialization of the capital goods sector as a distinctly separate branch of production. This was a direct result of the rise of the large corporation. Big industrial complexes, in order to attain the required economies of scale, had to build up their productive capacity well above the current level of demand. The production of machinery and equipment could no longer be confined to workshops within the firms of the consumption goods sector. This sectoral feature of accumulation, occurring especially in Germany and the United States, but later also in Japan, led Central European Marxists as well as non-socialist intellectuals (Tugan Baranovsky, for example), to debate whether the tendency toward an ever increasing predominance of the capital goods sector could be maintained indefinitely, or whether it would lead to an endemic problem of realization (Tugan Baranovsky, Rosa Luxembourg). Looking with modern eyes at that debate, one can say that the participants were in fact grappling with the question of capacity utilization in modern capitalism without, however, making it into an explicit issue.

Michał Kalecki's contribution lies precisely in having brought to the surface the problem of capacity utilization in monopolistic economies. In this way, his writings can be read as a synthesis and as a further original development of the ideas outlined by Lenin and Rosa Luxembourg. But Kalecki's novel approach not only revolutionized Marxian thought, it also determined a change in the overall perspective toward the business cycle in general. The theories of business fluctuations then prevailing in Europe, as expressed by Albert Aftalion, viewed depressions as resulting from an overproduction of consumer goods, leading to a fall in prices below costs of production. The gist of Aftalion's argument is as follows. The construction of new plants requires a longer period than the production of consumables, therefore demand cannot be adequately satisfied and prices remain high. As soon as new factories become operational, their output will flood the market for consumption goods, reducing prices and profit margins. Kalecki rejected this line of thought from the outset. On the very first page of his 1933 *Essay*, in direct reference to Aftalion he wrote: "This conclusion, which is inconsistent with reality, results from the false assumption that productive capacity remains fully employed, and indeed reaches its peak during depression" (Vol. I, p. 67). Yet why should the degree of utilization play such an important role in the phases of business cycles?

Kalecki seemed to have worked out the *economic* answer to this question before its mathematical formulation in his 1933 *Essay*. Two outstanding papers published in 1932 in the Polish journal *Socialist Review*, now available in English thanks to this collection, explain why—with the crisis of the 1930s—the degree of capacity utilization has acquired such an important role. The first, called "The Influence of Cartelization on the Business Cycle" (Vol. I, part 2), is a critique of the view that the price-stabilization policies

enforced by cartels would reduce output fluctuations, a thesis common also among social democratic circles and put forward in 1928 by Schumpeter in his *Economic Journal* paper "The Instability of Capitalism."

Kalecki begins by comparing two economies: one has both a cartelized and a competitive segment, while the other is freely competitive. The cartelized sector will display constant profit margins per unit of output because of price-fixing policies, whereas profit margins in the wholly competitive economy will fluctuate with prices. Hence, they will rise in a boom, due to the expansion of demand and the rise in prices, and fall in a recession on account of price deflation. It follows that, compared to the cartelized sector, profits in the competitive economy will also be higher in a boom and lower during a crisis. The competitive economy will, of course, be subject to output fluctuations. But since profit margins vary with the cycle, during a depression output will fall less than profits.

By contrast, the economy with a cartelized sector will behave roughly as follows. Cartels do not compete through prices but via the buildup of productive capacity, which is the main instrument for capturing the largest possible market share. In a boom, cartels engage in an "investment race" which, through its impact on the overall level of demand, will lift prices and profit margins in the competitive sector of the economy. However, this very investment race creates a situation in which at the beginning of the crisis the cartelized sector will already have a significant amount of excess capacity. In this context, stability in profit margins means that cartels will respond to a slowdown in demand by cutting the level of investment and of employment, causing additional unused capacity. Kalecki assumed that the competitive branches were concentrated mostly in the consumption-goods industries, a position which he changed after the war. As a consequence, the reduction in demand for consumption goods caused by the firing of workers in the cartelized industries will lead to a fall in the prices of consumption goods. Output in these industries will decline but not as much as the cartelized ones. On balance, the economy with a cartelized segment will show greater fluctuations in output than a wholly competitive system. Stability in profit margins does not mean, therefore, stability in the level of investment. On the contrary, capacity-based competition implies that the response to a slowdown in economic activity will come chiefly through a fall in investment levels.

From this brief presentation of Kalecki's early approach, it is easy to see how monopoly capital (cartels) and the problem of realization are connected via the role played by the degree of capacity utilization. In this way, both Lenin's and Rosa Luxemburg's preoccupations are unified in a novel theoretical framework reflecting the conditions of the 1930s. Following his theory, Kalecki developed a systematic criticism of the position expressed by the main economic thinker of the Communist International, Eugene Varga, concerning capitalism's ability to overcome the Great Depression.

In an article printed in the *Internazionale Presse Korrespondenz* of February 1932, Varga argued that the fall in wages caused by the Depression would reduce unit costs of production, thereby favoring a recovery in the rate of surplus value and in the rate of accumulation. Furthermore, the fall in prices, by cheapening the cost of fixed capital, would help the recovery in the rate of profits and in the degree of capacity utilization. In Kalecki's eyes, the foundations of such an optimistic pronouncement were very shaky indeed ("Is a 'Capitalist' Overcoming of the Crisis Possible?", in Vol. I, part 2). He pointed out that a fall in wages, if accompanied by a proportional fall in prices, would not much affect the cost of production. If, on the other hand, wages fell more than prices because of the cartel policies, the likely outcome would be an increase in the level of unsold inventories in the consumption-goods sector. Also the rate of profits would not be increased by price deflation. In fact, a fall in profits resulting from a collapse in output greater than the fall in prices would increase the value of the stock of capital relative to the value of output. Consequently, the value of output per unit of capital would decline, pushing the rate of profits downward. If neither a fall in wages nor a decline in prices can contribute to a recovery in profitability, the system has very scant chances of finding its way out of the crisis, except in the case of a wartime boom. This is basically the position held by Kalecki throughout the 1930s. The capitalist world economy was seen as drifting helplessly toward war.

Kalecki's modifications of what may be called a classical Marxian approach to accumulation and crisis are basically two: (1) unused capacity is a phenomenon built into the working of a monopolistic economy; (2) price fixing, or oligopolies transforms any fall of wages into a fall in effective demand. At the same time, the monopolistic resilience of large corporations allows the transfer onto prices of any increase in wages exceeding the growth rate of productivity, unless unions are strong enough to prevent such an occurrence ("The Lesson of the Blum Experiment," 1938, in Vol. I, part 5; "Class Struggle and the Distribution of National Income," 1971, in Vol. II, part 1). In short, the system of monopoly capital is subject to declining profits like the competitive Marxian one, but unlike Marx's it is also held back by persistent unused capacity. It follows that the stimuli to expansion are more likely to come from external sources such as government expenditure on armaments.

These are the main themes Kalecki explored in the postwar years, aside from his contributions to the theory of growth in a socialist economy. After 1945 one did not have to be a Marxist to fear that with the end of the wartime boom the Depression Decade might come back. However, partly because of the noninflationary financing of the war itself and mostly because new wars (France in Indochina, the United States in Korea) got quickly underway, accompanied by U.S.-sponsored reconstruction programs in Europe instead of a slide into a new Depression, the global capitalist economy climbed onto

a path of sustained growth. In this context, the innovations born during the interwar period, whose mass application was thwarted by the Depression but enhanced by the world war (telecommunications, autos, aviation, electronics, etc.), started to spread virtually to every branch of economic activity. This state of affairs transformed the cultural framework within which economic analysis was undertaken. The Platonic idea of static market equilibria gained prominence once again, and cycles were seen as fluctuations around a trend line expressing the long-run growth rate. It is clear that, on these assumptions, the problems of the capitalist economy could be solved through clever financial manipulations. Downturns would be smoothed out by means of budget deficits, while other stimuli to private investment—such as accelerated depreciation allowances and flexible interest rates—would ensure a growth rate consistent with full employment.

Kalecki's postwar contributions to a dynamic theory are an antidote to the purge of crisis and stagnationist elements from the analysis of capitalist development. In the 1962 paper "Observations on the Theory of Growth" (Vol. II part 5), he explicitly took issue with the watering down of capitalism's problems to the simple antinomy (contradiction) of fluctuations around a trend line. "I believe," he wrote, "that the antinomy of the capitalist economy is in fact more far reaching: the system cannot break from the impasse of fluctuations around a static position unless economic growth is generated by the impact of semi- exogenous factors such as the effects of innovations upon investment" (Vol. II, p. 411).

A deeper discussion of the role of innovations followed six years later, just two years before his death, in "Trend and the Business Cycle" (Vol. II, part 5). The essence of the necessarily complex mathematical constructions contained in that article is easy to grasp. The dynamic behavior of a modern capitalist economy is based on the interaction of a number of factors. First, a mature economy possesses a high level of productive capacity. Older equipment, however, is associated with declining profits. In other words, the real costs associated with the operation of old machinery increase over time. Second, such an economy is organized on a monopolistic basis. In Kalecki's formulation, the degree of monopolization is expressed through a given, quite-inflexible share of profits in national income. Third, the higher the degree of monopolization in the economy, the lower the impact of the rise in costs associated with the operation of old equipment. Monopoly capital allows, therefore, for the absorption of the costs of holding onto relatively older machinery. Fourth, the impact of innovations on investment is greater the greater the transfer of profits from old to new capital equipment. Yet a highly monopolistic economy, capable therefore of reducing the impact of the rise in costs linked to old machinery, would need a very heavy stream of innovations in order to generate internally a high level of investment. It follows that, even taking innovations into account, a chronic underutilization of equipment may result if monopolistic elements are strongly entrenched in the system.

These were not just mathematical exercises. Kalecki's concern was to explain the actual course of the evolution of modern capitalism. His criticism of the view that things will be taken care of by technical change and his conviction that the basic contradictions of a monopolistic economy tended to reappear also in the postwar period were grounded in his analysis of the U.S. case. It is unfortunate that the editor of this collection has omitted Kalecki's excellent paper on the situation in the United States in the postwar period as compared to the prewar years. Luckily the essay is available in a collection of his papers published by Monthly Review Press<sup>2</sup> (*The Last Phase in the Transformation of Capitalism*). Kalecki's statistical analysis showed that the main factors preventing the reemergence of an overaccumulation crisis were external and institutional in nature: budget deficits, export surpluses, a higher share of taxes on profits. These factors were in very large part connected to armament expenditures.

However, the social and political picture of the 1950s is presented in a markedly different light from that of the 30s. The absorption of the surplus by external and institutional means enabled the U.S. economy to sustain a relatively high level of employment and a growth in wages along with productivity increases. This, Kalecki thought, caused a sort of social atrophy in the class consciousness of the working people. Therefore, he rejected the catastrophic view of capitalism dished out by the Communist Parties in the Soviet Union and Eastern Europe. In a series of lectures given in 1955 at the Central Committee of the Polish United Workers Party (Communist), Kalecki gave the following picture of the U.S. society: "This is an economic system which, though having a tendency to go into recession, avoids catastrophic crisis but does not show a high rate of economic growth." In turn, the "absence of severe crises changed the mentality of the U.S. masses and made them susceptible to the mass media and propaganda which, ... in the U.S.A. are in fact controlled by the ruling class." ("The Impact of Armaments on the Business Cycle after the Second World War," Vol. II, pp. 400–401).

At the time of Kalecki's analysis in the 1950s, the tendencies toward stagnation in the United States were somewhat isolated from the rest of the world because both Europe and Japan were in a phase of economic reconstruction. The two subsequent growth periods in the United States during the 1960s and the 1980s were linked to actual war and/or military expenditure. In this respect Kalecki's conception of the evolution of capitalism has been confirmed. Yet there has been an important—perhaps decisive—new factor which demands a new theoretical analysis. U.S. growth in the 1960s was essential for the continuing expansion of Western Europe and, especially, of Japan. The second growth phase, despite the much more open character of the U.S. economy, did not put an end to the stagnation forces of the 1970s. Western Europe, although it increased its exports to the United States, remained basically in deep stagnation. The only positive repercussions were in Japan and related areas in Asia. The dominant and novel aspect of the

1970s and 1980s was not the growth of output, but the generalization of financial speculation.

Bourgeois economists look at financial speculation as a result of the irrationality of policy-makers. Instead, the rise of finance, its “emancipation” from production, should be seen as the cause, not the effect, of interest- and exchange-rate instability. It is also the cause of the intractability of balance-of-payments problems. The implication of the “financial explosion” is that the monopolistic corporation cannot be viewed as a stable and coherent unit. *Business Week’s* realistic term “the hollow corporation” should not be read too literally. Corporations are very full indeed, but their internal operational coherence is shattered by the primacy of finance over production. The study of this new and most chaotic phase of capitalism must become the main task of present-day Marxian political economists. Marxists must scrutinize financial capital with the same revealing lens that Kalecki (and Baran and Sweezy) focused on industrial monopoly capital.

## Notes

1. The book is out of print. Photocopies are available from University Microfilms, 300 N. Zeeb Road, Ann Arbor, MI 48106.
2. The book is out of print. Photocopies are available from University Microfilms.

# 9

## Kalecki's Pricing Theory Revisited

*Peter Kriesler*

The paper looks at the development of Kalecki's pricing theory, arguing that there was substantial modification and change in the various formulations, and therefore it rejects any argument of continuity in that theoretical development. It considers the elements common to all versions of the theory before concentrating on the earliest formulation. Although, in this version, the analysis concentrated on the individual firm, this was broadened in later versions to incorporate industry-wide considerations; however Kalecki never adequately dealt with the problems of defining an industry. Kalecki's 1939–1942 work on price theory is seen as an unsuccessful attempt to widen the scope of the analysis by utilizing the tools of orthodox microeconomic theory. After the detour provided by these articles, Kalecki made various attempts to reformulate the theory, but did not appear to be satisfied with any of them.

Kalecki was ultimately unable to incorporate his basic insights with respect to the pricing decision in the manufacturing sector of capitalist economies into a formal model which was compatible with his analysis of the determination of distribution and the level of output. He modified and changed his pricing equation from his earliest English publication on that theme in 1938 until his posthumously published paper in 1971.

This theme stands in antithesis to that of Basile and Salvadori (1984–85, p. 259), where they argue for “the continuity of Kalecki's thought with respect to pricing”; that is:

both Kalecki's initial pricing theory . . . and his last formulation . . . are the same as the simplified version he presented in 1954. (1984–5, p. 249)

This statement is true only at a very superficial level, and, in fact, Kalecki's analysis of pricing evolved through various versions as he attempted to

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solve certain problems inherent in each version. For Kalecki, prices in the manufacturing sector at less than full capacity utilization were determined by a markup on unit prime costs, which was itself determined by the degree of competitiveness. However, because the range of parameters considered by Kalecki varied greatly, this was reflected in substantial differences in the pricing equation in the development of Kalecki's work.

Before discussing the individual models, it is important to identify the common elements which run through all versions of Kalecki's pricing analysis.

### 9.1 Common elements

The analysis is concerned with advanced capitalist economies, which, for the sake of simplicity, are assumed to be closed with no government sector.

The starting point of Kalecki's analysis of pricing was the distinction between the industrial manufacturing sector and the raw materials sector. Kalecki concentrated on the imperfectly competitive manufacturing sector where excess capacity created elastic supply conditions so that prices were determined on the basis of costs. This was contrasted with the more competitive raw materials sector where short-period inelastic supply meant that prices were directly influenced by changes in demand. Kalecki noted (1954, p. 11): "It is clear that these two types of price formation arise out of different conditions of supply." In the raw materials sector, either increases in demand cannot wholly be met by increases in supply inducing predominantly price responses, or supply is subject to increasing costs so that both quantity supplied and price increase. Despite references to the competitiveness of this sector, this kind of competition should not be confused with the "perfect" competition of neoclassical theory. Rather, it is a reference to the fact that, in this sector, both supply and demand factors play a role in the determination of price. As a result, any market imperfection on the production side can influence price only by manipulating supply. For these reasons, prices of raw materials tend to "fluctuate much more strongly" than other prices (1938, p. 110).

Kalecki's main concern, however, was with the imperfectly competitive manufacturing sector. Here Kalecki was an important originator of the use of reverse L-shaped cost curves, with marginal costs (and, therefore, average variable costs) constant up to the level of full capacity utilization. This, coupled with postulate of general excess capacity as the norm, results in changes in demand being met by changes in supply, without any changes in costs or prices. As a result, Kalecki argued that prices in the manufacturing sector are determined as a markup on costs, with the markup being determined by "semi-monopolistic and monopolistic" factors which Kalecki labeled "degree of monopoly" (1968, p. 168).



## 9.2 "The Determinants of Distribution of National Income"

The chief concern of Kalecki (1938, slightly revised as the first chapter of Kalecki, 1939a) was with "the determinants of distribution of national income." Nevertheless, there are important discussions both as to the nature of costs in the manufacturing sector and as to the determination of prices in that sector.

In his 1938 analysis of price, Kalecki uses Lerner's measure of the degree of monopoly (see Lerner, 1934):

$$\mu = (p - m)/p \quad (1)$$

where  $p$  is price,  $m$  is marginal cost, and  $\mu$  is the measure of the degree of monopoly, that is, the markup.

In both Lerner's and Kalecki's formulation, price must be taken as referring to "net price," which is "the revenue per unit of product after the deduction of advertising costs, etc." (Kalecki, 1938, p. 100).<sup>1</sup> Similarly marginal costs were taken by them to include only production costs, thereby excluding selling costs, transport costs, and any other costs not directly arising from the production process.

From equation (1), it follows that:

with a given degree of monopoly the relation of price to marginal cost is a constant  $1/(1 - \mu)$ . (Kalecki 1939, p. 27)

This is represented in Figure 9.1.

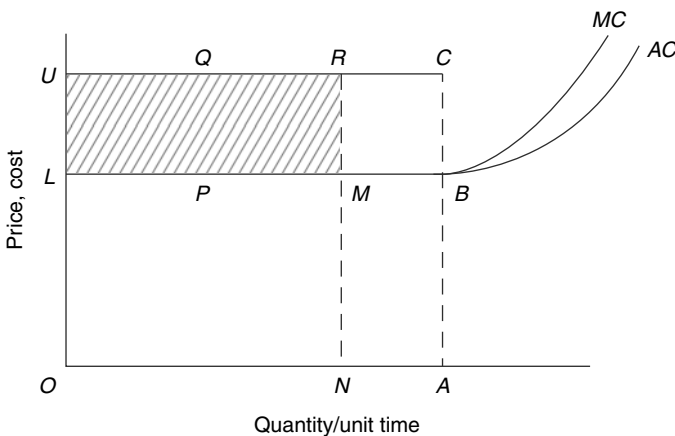


Figure 9.1 Cost curves of an enterprise in an imperfectly competitive market

The cost curves in Figure 9.1 are drawn on the assumption of constant marginal cost, up to the level of full capacity utilization, *OA*. Below this point, marginal cost is constant and equal to average variable cost, which is represented by the line *LPM*. The ratio of price to marginal cost, for a given "degree of monopoly" (i.e., for a given markup), is constant and equal to the reciprocal of one minus the markup. Therefore, from a given marginal cost curve, the "price curve" corresponding to it can be imputed from this proportional relationship, with a given "degree of monopoly." This is shown on the diagram as *UQRC*, which represents neither a demand curve nor an average revenue curve. Rather it is a "price" curve describing the price that results from a given average variable cost curve with given "degree of monopoly."

For this analysis to provide a coherent nontautologous theory of price, the markup must itself be determined. For Kalecki, the clue to the determination of the markup lies in the factors influencing the competitiveness of the industry, for example, the degree of concentration, the relation of transport costs to price, the degree of standardization of price, the organization of commodity exchange, and so on (Kalecki, 1939a, p. 82). These forces may be difficult to quantify with any degree of precision; nevertheless, as Riach has pointed out, they provide a coherent theory of pricing (1971, p. 52; see also Kriesler, 1987, Appendix).

This early version of Kalecki's analysis has been subjected both to the charge that it is a tautology and to the charge that the markup was equal to, and was solely determined by, the elasticity of demand for the output of the firm concerned. It can be shown that under neoclassical profit-maximizing assumptions, with marginal cost equal to marginal revenue, the markup is equal to the reciprocal of the elasticity of demand.<sup>2</sup> It should be noted that this inverse relationship between the markup and the elasticity of demand is applicable only in the absence of advertising. When enterprises engage in "day-to-day" advertising for a product, then the price which is relevant for the firms selling the product differs from the price used to estimate the elasticity of demand. For the former, the relevant price is net price, allowing for the deduction of (inter alia) advertising costs. However, the price which is important from the viewpoint of the consumer, and hence the price utilized to calculate demand elasticity, is the gross price, before any such deduction. The equality of the "markup" with the inverse of the elasticity of demand was derived on the basis of a uniform price. However, where the price paid by the consumer differs from the price relevant to the producer, then this relationship no longer holds. In fact, it may be contended that, even in the absence of advertising, the equality between the "markup" and the inverse of the demand elasticity is dubious. The argument holds because the derivation of the elasticity concepts relies on static equilibrium conditions, and certain shaped cost and revenue curves.

If we are willing to admit that firms act as neoclassical profit maximizers, then and *only* then . . . [will] the degree of monopoly vary inversely with the elasticity of demand. (King and Regan, 1976, p. 53n)

For elasticity to play a role, it must be calculable, which requires knowledge of the individual firm's demand curve in order to determine marginal revenue. There are, however, insurmountable difficulties in oligopolistic industries for individual firms trying to identify or determine their demand curves. In some situations with, for example, high levels of interdependence of price and demand of the different firms in the market, no determinate demand curve can be considered for any firm in isolation. Yet, the question of the determinacy of a firm's elasticity depends on the determinacy of the firm's demand curve and of its marginal revenue. The idea of elasticity is contingent on the theory of imperfect competition utilized. Hence, it is necessary to consider whether the relevant parameters are determinate in Kalecki's model. This is not an easy question to answer, as Kalecki does not explicitly expound a theory of imperfect competition. In "Money and Real Wages" (1939b, p. 52) Kalecki argues that in the imperfectly competitive (industrial) sector of the economy "establishments are in general not fully utilized since they maintain a monopolistic (cartels) or quasi-monopolistic imperfect competition position in the market." In Kalecki (1938, p. 111) and Kalecki (1939a, p. 35), an important role is assigned to cartels in the "slump" aspect of the trade cycle. Clearly, in the case of cartels, interdependence between firms is so strong as to render incoherent the notion of independent determinate demand curves for individual firms. Therefore, in such cases, the elasticity of demand is also not capable of being determined.

In the case of "quasi-monopolistic" or imperfect competition, Kalecki's views are much more difficult to perceive. In "Money and Real Wages" (1939b, p. 52n) he refers to Sraffa (1926), Chamberlin (1933), and Robinson (1933), while in Kalecki (1939a, p. 28) he refers to Harrod's "Doctrines of Imperfect Competition" (Harrod, 1934). Kalecki's position is ascertainable only by inference. In Kalecki (1938) and Kalecki (1939a) there is no mention either of the marginal revenue curve or of the demand curve. In fact, instead of utilizing a demand curve where it is appropriate, he derives a "price curve" which, although not the same, serves a very similar function. Given this relation, marginal revenue is not determined from the demand curve. Rather, it is represented by the "price line" (*QRC*), which is a line parallel to the constant marginal cost curve, with the distance between the lines determined by the markup, up to the current level of output, *ON*. If the firm wishes to increase output beyond this level, then demand and supply considerations both become important in determining price. In other words, due to the fact that the firms are not profit-maximizers in the static orthodox manner, marginal cost will not, in general, be equal to marginal revenue. However, it is only when these two are equal that the inverse relation between the markup and the elasticity of demand can be established.

Given that the concept of marginal revenue and in particular the demand curve had been established by the time of Kalecki's writing, and that he was probably familiar with it, there is a strong inference that his neglect was due to the fact that he did not feel that it had a role to play in his analysis.

This inference is reinforced by his next major article on microdistribution (Kalecki, 1939–40). In this paper, Kalecki utilizes an entirely new approach, where marginal revenue and the elasticity of demand become important tools of the analysis. However, the use of the firm's elasticity of demand is suspect because it is applicable only in the absence of advertising and in a static equilibrium framework and, in addition, requires marginal revenue to be calculable. Yet Kalecki's earlier model does not require marginal revenue to be calculable and it does allow for the incorporation of selling costs.

In orthodox analysis, a profit-maximizing firm will produce at the level where marginal costs are equal to marginal revenues. In this static framework the markup is a dependent variable. For Kalecki, the markup is determined by the degree of monopoly, so that price becomes the dependent variable within a dynamic framework. This reverses the causality assumed in elasticity analysis which is derived under the assumption of static conditions and is, therefore, hardly relevant in a dynamic framework. Therefore, to postulate a strict equality between the "markup" and the inverse of the elasticity of demand is spurious. This is not to say that the elasticity of demand is not a determinant of the markup, but rather that it is not the sole determinant.<sup>3</sup>

The analysis of price in these early papers of Kalecki concentrates on the individual firm. Although wider considerations may enter into the determination of the markup, they are not institutionalized into the price equations, as they were in Kalecki's later works.

### 9.3 Pricing, 1939–42

The early formulation of Kalecki's pricing analysis created problems for the analysis of distribution for which it was the foundation.<sup>4</sup> As a result, Kalecki attempted to reformulate the analysis in a manner which introduced wider elements, in particular oligopolistic interdependence, into the pricing equation, as well as providing a framework more susceptible to aggregation. "The Supply Curve of an Industry under Imperfect Competition" (1939–40) and "A Theory of Long-Run Distribution of the Product of Industry" (1941) represent his initial attempts at solving these dilemmas by providing the framework for an analysis of an industry in an imperfectly competitive market. These papers were Kalecki's first attempts to generalize some of the concepts of his earlier papers, as well as his endeavors to deal with the theory of oligopoly. Their lack of success is apparent from the fact that they are ignored by Kalecki, who does not mention them again in later writings.

In 1935, Kalecki left Poland, and, after spending some time in Sweden, he came to England. During this period, particularly due to his friendship with Joan Robinson, he came into contact with the new developments in the analysis of the theory of the firm, which he incorporated into the papers under discussion. Two particular instances of Kalecki's utilizing elements of the new theoretical developments are his use of the distinction between

differing market situations and his use of concepts developed at the Oxford Institute of Statistics associated with the work of Hall and Hitch.

The stated purpose of Kalecki (1939–40, p. 91) is to shed “some light” on “the concept of the short-period supply curve of an industry under imperfect competition.” It is clear, however, from the contents that Kalecki had other motives. The problems with deriving such a curve are documented in Robinson (1933, p. 86) and revolve around the inability to derive an industry demand curve independent of the general state of overall demand. To overcome this problem, Kalecki defines a given state of “market imperfection” determined by the elasticity of demand for the product of the firms in the industry and by the ratio of each firm’s price to the industry’s average price. Changes in “market imperfection” induce shifts in the industry supply curve.

The analysis initially considers “pure imperfect competition,” which corresponds to “monopolistic competition” in modern terminology, and then allows for oligopoly.

For “pure imperfect competition,” Kalecki (1939–40, p. 91–92) notes:

The market imperfection is given if the elasticity of demand for the product of each firm  $e_k$  is a determinate function of the ratio of its price  $p_k$  to the average price  $\bar{p}$  or:

$$e_k = \epsilon_k(p_k/\bar{p}) \quad (2)$$

the shape of the function  $\epsilon_k$  representing the state of market imperfection.

If for a given  $(p_k/\bar{p})$  elasticity rises, then market imperfection is said to fall.

From the definition of own-price point elasticity:  $e_k = (do_k/dp_k) \cdot (p_k/o_k)$ , and, integrating equation (2) for a given  $\bar{p}$ , we obtain the following:

$$o_k = c_k f_k \quad (3)$$

where

$$\log f_k = \int \frac{d(p_k/\bar{p})}{(p_k/\bar{p})} \epsilon_k$$

and  $c_k$  is a constant of integration.

Therefore,  $f_k$  is determined by  $\epsilon_k$ .

Equation (3) is the demand curve for the output of the  $k$ -th firm in terms of the ratio of its price to the industry average price. The term  $c_k$  will vary with variations in the general industry demand for the product.

At this stage it should be noted that, although Kalecki derives the demand curve for individual firms and the industry supply curve rather than the

firm's pricing equation, the latter can be inferred from the analysis. In "pure imperfect competition" short-period equilibrium will require marginal cost ( $m_k$ ) to be equated to marginal revenue ( $m_r$ ). Under these conditions the latter will be equal to  $(1 - 1/e_k)$ . Therefore, for a profit-maximizing entrepreneur in short-period equilibrium (as it appears in Kalecki, 1939–40):

$$m_k = p_k(1 - 1/e_k). \quad (4)$$

From (4), the price equation can be derived:

$$p_k = m_k e_k / (e_k - 1). \quad (5)$$

The pricing equation underlying this analysis is similar to that referred to in the discussion of the conditions under which the markup is equal to the inverse of the firm's own-price point elasticity of demand. That is, the two pricing equations will coincide only in a static equilibrium framework where the firm knows (or can estimate) its demand curve and in the absence of advertising. This is the case only in Kalecki (1939–40), but not in his other works.

By equating short-period marginal costs with short-period marginal revenues, assuming that marginal cost curves are horizontal or increasing and that the coefficient  $c_k$  bears a definite relationship to the general level of demand for the industry's output, Kalecki derives the industry's supply curve. From this Kalecki (1939–40, p. 97) concludes that:

- (1) the supply curve is horizontal or increasing;
- (2) a rise in the prices of prime factors causes all ordinates of the supply curve to increase more or less in the same proportion as an appropriate index of these prices;
- (3) when market imperfection increases the supply curve usually shifts upwards.

In the case of oligopoly, Kalecki (1939–40, p. 97) argues that price is set in such a way that marginal revenue is greater than marginal cost:

He does not reduce his price below this level because he assumes that this will induce his competitors to reduce their prices and so the average price, sufficiently to render his operation unprofitable. But neither does he raise the price above this level because he assumes that his competitors will not raise their prices sufficiently to make *this* operation profitable.

This argument, based on the model in Hall and Hitch (1951), has serious shortcomings related to the fact that at the relevant point marginal revenue is undefined, due to the kink in the demand curve at that point. If this were not the case, it is unclear why the price charged would not be at the

point where marginal cost equalled marginal revenue, as this would be the profit-maximizing point for each firm.

The degree of oligopoly is defined by the ratio:

$$a_k = p_k/m_k (1 - 1/e_k) \quad a_k > 1 \quad (6)$$

while the price is determined by:

$$p_k = m_k a_k (e_k/[e_k - 1]). \quad (7)$$

Kalecki points out that the entrepreneur will not know his actual elasticity of demand: "In fact, he has only a vague idea on this subject, which may diverge substantially from the actual position" (1939–40, p. 98). Therefore Kalecki advocates replacing  $e_k$  with  $w_k$ , which is the entrepreneur's estimate of the former (see Basile and Salvadori, 1984–85, p. 251), so we replace (7) with:

$$p_k = m_k a_k (w_k/[w_k - 1]). \quad (8)$$

Similarly, the entrepreneur will be "ignorant ... as regards the precise nature of his marginal cost function" (Kalecki, 1939–40, pp. 98–99):

It is obvious that for the purpose of the preceding argument we must attribute to the marginal cost  $m$  not its actual value but what the entrepreneur considers it to be; and that in consequence the relevant marginal cost curve is often horizontal up to the point of the full use of equipment.

Finally, Kalecki incorporates selling costs, not, as in his earlier papers, as a deduction from price, but now as an addition to marginal costs. This was probably due to the problems of analyzing price in terms of elasticity if selling costs are deducted from price.<sup>5</sup>

Kalecki concluded that (1939–40, p. 99):

the supply curve shifts upward if there is an increase in market imperfection, in the degree of oligopoly or in the rate of prime selling costs. All other properties of this supply curve are . . . the same as deduced above.

The "degree of oligopoly" is determined by the ratio of marginal revenue to marginal cost, where marginal costs include "marginal selling costs" (Kalecki, 1939–40, pp. 97–99). In order to obtain empirical results, Kalecki simplifies the analysis, by introducing the "reduced supply curve," which related reduced prices ("ratios of commodity price to the index of prime factor-prices") and reduced outputs – which compares output with that produced by the equipment of the base year (p. 100). Kalecki then shows

that this relation is very similar to the ratio of proceeds to prime costs. The “quasi supply curve” is defined as “representing the functional connection between the ratio of proceeds to prime costs and reduced output” (p. 103), and this was the proxy Kalecki utilized to investigate “the reduced supply curve.” These were the ratios, independent of the argument earlier in the text, which were used by Kalecki to determine aspects of distribution. At the end of the article, insights into distribution are reached, not from the basis of the theoretical discussion, but rather from the manipulation of ratios that have been simplified to yield empirical results.

In Kalecki (1939–40) and Kalecki (1941), an initial attempt was made to use the tools of “orthodox” microeconomic theory. Unfortunately, Kalecki’s use of these tools is unsatisfactory as he makes numerous errors,<sup>6</sup> is ambiguous and inconsistent.<sup>7</sup> Some examples (all from Kalecki, 1939–40) are presented below.

1. In the case of “pure imperfect competition” where there is a very large number of firms, it is legitimate to fix the average price of all firms ( $\bar{p}$ ), while the price of one firm varies. But in the case of oligopoly, any variation in one firm’s price will influence that average, especially due to the interrelationship of prices assumed by Kalecki. Therefore, in his analysis of oligopoly, Kalecki is incorrect in utilizing results obtained under the assumption of “pure imperfect competition,” where that result depends on the average price being fixed while the individual price can vary.
2. Kalecki defines elasticity, in absolute terms, in the conventional way. That is:

$$e_k = do_k/dp_k \cdot p_k/o_k.$$

The elasticity referred to, however, is not the usual point elasticity of own-price demand; it is the elasticity with respect to the ratio of own-price to industry average price (own/industry elasticity). This creates problems. For example, if both own-price and the industry price change in the same proportion (so that there is no change in the ratio) with no change in the firm’s output, then the own/industry elasticity will remain unchanged while the own-price elasticity will vary. Therefore Kalecki’s use of elasticity concepts can be seen to be highly ambiguous.

3. The concept of “industry” is taken for granted. This may be reasonable if the industry under consideration consists of single product firms producing a homogeneous output. However, where the products of firms are differentiated in the eyes of consumers then problems with defining an industry become extremely complex.<sup>8</sup> Kalecki does not come to grips with these issues.

In addition to these logical problems, Kalecki himself questions the usefulness of some of the concepts. He admits that the entrepreneur will only have a “vague idea” of “the actual elasticity of demand for his product in



terms of the ratio of his price to average price" and of the "precise nature of his marginal cost function." Further, these vague ideas "may diverge substantially from the actual position" (1939–40, p. 98). In the case of marginal cost this does not represent a problem, as marginal cost can be assumed to be horizontal. But for marginal revenue, there is no such "easy" solution.

It may be that these errors were pointed out, or realized by Kalecki, and played some role in his "abandoning" of these articles. In any case, he did not make further reference to them. The use of the tools of "orthodox" micro-economic theory was not repeated in any of Kalecki's later works. In addition, the attempt by Kalecki, in these articles, to incorporate into his analysis the different market classifications defined by the contemporary literature was discarded. In his next major work on the subject (Kalecki, 1943) no distinction is made between the types of imperfect competition which are treated under the general head of "conditions of market imperfection and oligopoly." The distinction does not reappear in subsequent works where such situations are described as "semi-monopolistic" (see, for example, Kalecki, 1954, p. 13).

For all these reasons, then, it appears that Kalecki abandoned these early articles. They represent a digression that led nowhere and hence were discarded, having little influence on his subsequent analysis. The main theme, in terms of his pricing theory, is taken up again in 1943 with the publication of *Studies in Economic Dynamics*.

#### **9.4 The Analyses of Price Determination in Kalecki's Later Works**

In the analyses of price determinations in Kalecki (1943), Kalecki (1954), and Kalecki (1971b), the "Kaleckian approximations" of constant average variable and marginal costs up to the level of full capacity, and of the existence of excess capacity as the general rule in the manufacturing sector, play important roles. The concept of industry which plays an important role in each of these is not adequately defined.<sup>9</sup> In Kalecki (1943), "the firms fix the prices of their products, taking into consideration the mobility of customers (market imperfection) and the influence of their own prices on those of their rivals (oligopoly)" (p. 10); average variable costs also play a role in price determination through their influence on "gross margins" (profits and overheads). "In view of the uncertainties faced in the process of price fixing," Kalecki (1954, p. 12) explicitly states that he does not assume "that the firm attempts to maximize its profits in any precise sort of manner":<sup>10</sup>

In fixing the price the firm takes into consideration its average prime costs and the prices of other firms producing similar products.

In Kalecki (1954) the mobility of customers arising from the heterogeneity of products was not seen as exerting an influence on the pricing decisions of

entrepreneurs independently of the general interdependence among firms. In the explicit formulation of the pricing equation (equation 9), an important variable is  $\bar{p}$ , the average price of industry (p. 15), which only makes "sense" if the "industry" is adequately defined. This is reiterated in Kalecki (1971b, p. 160):

Each firm in an industry arrives at the price of its product by "marking up" its direct cost consisting of average cost of wages *plus* raw materials in order to cover overheads and achieve profits. But this mark-up is dependent on "competition," i.e. on [the] relation of the ensuing price to the weighted average price of this product for the industry as a whole.

For Kalecki, average (prime) costs are the basis on which pricing decisions are made, and such decisions will reflect the competitiveness ("degree of monopoly") of the economic environment facing the decision maker. Kalecki reasons that the relationship between price and cost should reflect such factors. In Kalecki (1938) and Kalecki (1939a) this relationship was formalized as the "degree of monopoly." In Kalecki (1943), rigorous analysis results in a very similar formulation, with the title of "percentage gross margins."

One aspect of Kalecki's 1943 definition of an industry required that the changes in unit prime costs of the firms in an industry be similar. In an industry with  $n$  firms, the  $n$  prices charged by the firms for their product are denoted as  $p_1, p_2, \dots, p_r, \dots, p_n$ ; and the average prime costs as  $a_1, a_2, \dots, a_r, \dots, a_n$ . For the  $k$ -th firm, the margin of profits plus overheads is equal to  $(p_k - a_k)$ , which Kalecki calls the "gross margins," while  $[(p_k - a_k)/p_k]$ , which corresponds to the measure of the degree of monopoly in Kalecki (1938, 1939a), is called the "percentage gross margins." Kalecki shows that if the average costs of all the firms in the industry change proportionately, prices will react in such a way that there will be no change in percentage gross margins. After examining the implications of a change in the conditions of market imperfection (transport costs), Kalecki concludes "that with a given relation of average costs within the industry, and on condition that no firm is working up to capacity, the percentage gross margins  $[(p_k - a_k)/p_k]$  reflect changes in the state of market imperfection and oligopoly" (1943, p. 11). The concept of the percentage gross margins is then refined by Kalecki and used to analyze the determination of distributive shares.

In Kalecki (1954), the parameters defining the pricing decision of the firm are the firm's average prime costs and the interrelationship with the prices of other firms producing "similar products." This is embodied in the following equation from Kalecki (1954):

$$p = mu + n\bar{p} \quad (9)$$

where

$p$  is the firm's price,

$u$  is the firm's unit prime cost,

$\bar{p}$  is the weighted average price of all firms producing "similar" products, "weighted by the respective outputs and inclusive of the firm in question" (p. 12n), and

$m, n$  are positive coefficients.

Clearly, for  $\bar{p}$  to be at all meaningful the "industry" or relevant group must be adequately defined. If  $n\bar{p}$  is interpreted as expressing the influence of the prices of other firms producing "similar products," then conceptual problems arise with Kalecki's method of weighting prices. The first problem results from consideration of what the most suitable weighting system would be. On the interpretation of  $n\bar{p}$  stated above, the appropriate weights for the calculation of  $\bar{p}$  for each firm would be related to the extent to which each firm is seen as a competitor. Firms which are "nearer" to the firm in question in terms of competitiveness (cf. Kaldor, 1934) should have a higher weight than firms which are "farther." Only rarely will such a weighting system be equivalent to the one proposed by Kalecki, which required weighting on the basis primarily of output; this can only be regarded as a proxy. There is a further problem, however, with Kalecki's weighting system. The weighting of a firm's price by its output introduces bias into the calculation because output is not independent of price. This problem was emphasized by Sylos-Labini (1969), where the difference between large firms and small firms is qualitative as well as quantitative, resulting from technological discontinuities: "Only large firms can apply certain methods, both technical and organizational, and only large firms can realize certain economies of scale" (p. 35). Therefore a distinction can be drawn between the extremes of large, dominant firms with high output technologies operating at low cost and charging prices below the industry average, and small firms with lower output and hence higher costs and charging higher than average prices. It follows that bias, in the measure of the industry's average price, is introduced resulting from this correlation between a firm's price and the weight accorded it (i.e., output).

Finally, problems result from the inclusion, in the calculation of  $\bar{p}$ , of the "firm in question." It must be assumed that the firm's price used to calculate  $\bar{p}$  is a datum, namely, the actual price charged by that firm, as opposed to  $p$ , which is a decision variable. Nevertheless, there is an incongruity because, according to equation (9), the price charged by a firm can further influence that firm's pricing decision. Consider, for example, the effects of a decline in the unit prime costs of a single firm—assuming this has no effect on other firms. By equation (9) this will lead to a reduction in that firm's price. This in turn will cause a reduction in the industry average price  $\bar{p}$ ,

causing a subsequent reduction in  $p$ . Again this reduces  $\bar{p}$ . This process continues until eventually it converges to a new equilibrium.<sup>11</sup> Movements along the equilibrium path are generated solely by changes in the firm's price and the influence of those changes on the industry average price. It is unlikely that the firm would take so long to adjust to changes in its own costs. Even if other firms react, so there are other influences on the industry average price, each firm will continue to be, at least partially, influenced by its own price. In an industry where all the firms' price equations are of the same type as (9), then any change in the price charged by one firm, because of its impact on the industry average price, will cause changes in the price of all firms. This will continue with a long adjustment process converging to a new equilibrium. The problem with this scenario is that it does not conform to evidence (both empirical and theoretical) which suggests relative price stability in oligopolistic industries.

For equation (9), Kalecki "postulates"  $n < 1$ . To justify this, he considers a firm for which  $p = \bar{p}$ ; then:

$$p = mu + np \quad (10)$$

$$(1 - n)p = mu$$

$$p = \frac{mu}{1 - n}.$$

Now, given:  $mu > 0$  and  $p > 0$ , this means that, for that firm,  $n$  must lie between zero and one ( $0 < n < 1$ ).

In the general price equation (9),  $m$  and  $n$  reflect different influences on price. The symbol  $m$  reflects the markup, which is an indication of those influences on price resulting from considerations of general competitiveness, with the important exception of the interdependence of the firms within the industry. The symbol  $n$  reflects the influence on price of the interdependence of the firms within the industry. It should be noted that it is mathematically possible for  $n$  to be greater than 1 for any firm whose price is greater than the industry average price ( $\bar{p}$ ). However, economically this is unlikely as it implies that the firm under consideration is extremely influenced by the other firms—in which case it would be unlikely to charge so high a price.<sup>12</sup>

The important difference between the analysis of price determination in Kalecki (1943) and that in Kalecki (1954) is the explicit inclusion, in the price equations of the latter, of the term reflecting the interdependence of the firms within an industry. In order to calculate the industry's average price ( $\bar{p}$ ), the industry must be clearly defined. This is not the case in the analysis of Kalecki (1954), where the definition of industry is not stated precisely.<sup>13</sup>

## 5 "Class Struggle and the Distribution of National Income"

Although the text of Kalecki (1954) was reprinted in a second edition in 1965 and in Kalecki (1971a), his dissatisfaction with this approach is apparent in the version of the analysis contained in his final paper on distribution (Kalecki, 1971b), where the measure reflecting the degree of monopoly in Kalecki (1954) is substantially modified. Firms determine their product's price ( $p$ ) by "marking up" direct (or prime) costs ( $u$ ). The markup  $[(p - u)/u]$  is itself determined by the interdependence (or "competition") of the firms in the "industry," which is reflected in the ratio of the firm's price ( $p$ ) to the weighted average price of the industry ( $\bar{p}$ ), so:

$$(p - u)/u = f(\bar{p}/p) \quad (11)^{14}$$

By manipulating equation (11), Kalecki obtains:

$$p = u[1 + f(\bar{p}/p)]$$

As Kalecki argues, " $f$  is an increasing function: the lower is  $p$  in relation to  $\bar{p}$ , the higher will be fixed the mark up" (1971b, p. 160).<sup>15</sup>

The inadequacy of Kalecki's concept of industry is of importance as the values of  $\bar{p}$  and  $f$  are strongly influenced by the exact dimensions of the particular industry being analyzed.

Kalecki argues that the function  $f$  will vary for the various firms in the industry and will reflect "semi-monopolistic" influences and that increases in these influences are reflected by a higher  $f$ . Variations in prices among the firms in an industry result from differences in direct costs and in the function  $f$ .

According to Kalecki, with function  $f$  constant, proportionate changes in all direct costs will lead to proportionate changes in all prices. This follows from equation (11), as  $\bar{p}/p$  will not change. If, on the other hand, the direct cost of only one firm changes, then its price will change less than proportionately due to the change in the opposite direction of  $\bar{p}/p$ .

High profit levels,<sup>16</sup> if they accrue to only one firm, will increase the bargaining strength of trade unions for increased wages. If wage increases are granted, and there is no change in the function  $f$ , then by equation (11) prices will rise, providing the incentive for new wage demands. This is likely to continue, thereby eroding the competitiveness of the firm concerned. The only solution is the acceptance of a lower value for  $f$  and hence a lower markup.

It is important to note that in Kalecki (1971b) the basic analysis of distribution is conducted in terms of macroeconomic aggregates such as total profits, aggregate wages, and total output. The main role of the "microanalysis" is in determining the likely changes in price resulting from changes in these aggregates, in particular, of trade union pressure. In other words, from 1954,

Kalecki made no new attempts at analyzing pricing or the relative distributive shares utilizing microeconomic concepts. The reasons for this are never given, but can be deduced from the arguments presented in this paper, as follows. First, Kalecki's earliest work on pricing theory did not adequately incorporate the economic environment facing firms, nor the influence of competing firms. Second, Kalecki was unable to provide an analytically adequate definition of industry, despite the importance of this for his later works on pricing and distribution. Finally, Kalecki's attempts to use the tools of orthodox analysis in his pricing equations, in Kalecki (1939–40, 1941), contained analytical problems which led to their being abandoned.

It can be seen that, although in all versions of Kalecki's pricing analysis the firm sets its price on the basis of unit prime costs, it is only in the later versions that industry average price enters as an independent variable. Further, contrary to the arguments of Basile and Salvadori, we have seen that Kalecki's pricing analysis underwent substantial modification and development.

## Notes

1. It should be noted that advertising has two distinct components: the initial (capital) advertising expenditure of a firm attempting to break into a market, and the "day-to-day" advertising of established firms. It is the latter which is relevant here.
2. See, for example, Kalecki (1938, p. 100), Kalecki (1939a, p. 19), and Sylos-Labini (1969, p. 96). See also Kalecki (1942, p. 123), where he utilized this relationship to argue for the importance of the "degree of monopoly" as a determinant of gross profit. But note that in the two original Kalecki references this relationship is referred to only in a footnote or in passing while in Kalecki (1942, p. 123; emphasis added) it holds only under "*pure* imperfect competition."
3. Cf. Sylos-Labini (1969, pp. 90–93). Some economists have confused the role of elasticity in Kalecki's analysis. They see elasticity either as being the measure of the "degree of monopoly" or as being its sole determinant, rather than as only one determinant. For example, H. G. Johnson (1973, pp. 197–199) takes this confusion to its logical extreme with the argument that "the elasticity of demand is not determined by the capitalists in a particular industry since it is not a parameter of behaviour but a variable" (p. 198). This entirely misconstrues the role of elasticity in the analysis. Similarly, Kaldor concludes that "Kalecki built . . . a simplified theory of distribution, where the share of profits in output is shown to be determined by the elasticity of demand alone" (1968, p. 36S). Following Kaldor, Nuti contended that either the "degree of monopoly" is a tautology or "the degree of monopoly is obtained from the demand curve from each firm and is equal to the inverse of the demand elasticity, given the hypothesis of profit maximization; the theory runs up against the same problems as neoclassical theory, namely the reliance upon micro-economic concepts (here the elasticity of demand) to explain a macroeconomic problem" (1972, p. 226). See also Rostow (1948, p. 226), Davidson (1959, pp. 53, 133n), Dobb (1975, p. 269), Hahn (1972, p. 37), Rowthorn (1981, p. 36n), and Reynolds (1983, p. 497). In all these cases the role of the elasticity of demand has been greatly overrated. As noted above, Kalecki referred to it very casually and it played no role in his theoretical construct.

4. The emphasis, in these early papers, on the individual firm meant that the pricing decision was analyzed independent of the economic environment in which the firm operated. More importantly, Kalecki experienced severe problems in aggregating from the level of the individual firm to that of the industrial sector as a whole, due to the problems caused by the possibility of changes in the composition of output. See Kriesler (1987, pp. 48–51).
5. The same analysis of pricing is used in Kalecki (1940 – see pp. 34–37).
6. One example is Kalecki's use of marginal revenue in a situation in which marginal revenue is undefined.
7. One inconsistency involves obtaining equation (2) (Kalecki, 1939–40, p. 92) from the positive definition of the elasticity of demand, namely:

$$e_k = do_k/dp_k \cdot p_k/o_k$$

where  $e$  is the elasticity of demand for the product of the  $k$ -th firm, and  $p$  and  $o$  are that firm's price and output, respectively.

On the other hand, equation (3) requires the "negative" definition of the elasticity of demand:

$$e_k = -do_k/dp_k \cdot p_k/o_k$$

to be used.

To show this, consider the definition of the marginal revenue ( $MR_k$ ) of the  $k$ -th firm:

$$\begin{aligned} MR_k &= d(p_k o_k)/do_k = p_k + o_k \cdot dp_k/do_k \\ &= p_k(1 + o_k/p_k \cdot dp_k/do_k). \end{aligned}$$

Substituting  $e_k = -do_k/dp_k \cdot p_k/o_k$ , we obtain the following:

$$MR_k = p_k(1 - 1/e_k)$$

which is the expression utilized by Kalecki to derive equation (3).

8. The difficulty of defining either the industry or the commodity where there is product differentiation has been well documented (see Kriesler, 1987, pp. 11–13; 24–26).
9. Kalecki (1943) proposes a definition of industry based on the interdependence of both cost and price. Neither criteria separately gives an unambiguous definition of an industry; and, to a certain extent they are mutually exclusive. Kalecki (1954) simply talks about "firms producing similar products," while the issue is not discussed at all in Kalecki (1971a). See Kriesler (1987, pp. 60–64).
10. This point seems to have been missed in Fine and Murfin (1984), who stress the importance of profit maximizing for the "Kaleckian tradition" (see, for example, p. 101).
11. For proof of convergence to equilibrium, see Basile and Salvador (1984–85, Appendix).
12. Asimakopulos disputes Kalecki's assertion that  $n < 1$ . "In situations where price is set by a price leader and followed by others,  $n$  would be equal to one for the price followers and thus  $m$  would be equal to zero" (1975, p. 317). Because this relates to homogeneous oligopoly, it is not a criticism of Kalecki, who concentrated on

differentiated oligopoly. However, a differentiated model is discussed in a footnote: "This conclusion also holds when there is product differentiation. The price equation for a price follower would still have  $m$  equal to zero, with

$$p_F = p_L + d \text{ or } p_F = (1 + d)p_L$$

where  $p_F$  and  $p_L$  represent the prices of the follower and the leader and  $d$  is the recognized price differential, expressed either in absolute terms, or as a ratio, whichever is appropriate" (p. 317n). However, Asimakopulos' pricing model describes a different market situation from that envisaged by Kalecki, and the two can be reconciled if Kalecki's assumptions are replaced by:  $0 \leq n \leq 1$ ,  $m \geq 1$ ,  $0 < \bar{n} < 1$  and  $\bar{m} > 1$ . See Basile and Salvadori (1984–85, pp. 254–255).

13. The analysis of price determination in these later papers is important as it provides the starting point for Kalecki's analysis of distribution. In addition, Kalecki's analysis of price determination had an important impact on economic theory. Many important works have been significantly influenced by Kalecki's price analysis. For example, Baran and Sweezy (1966), Steindl (1952; 1979), Sylos-Labini (1969; 1974; 1979; 1979a), Robinson (1956), and Cowling (1983) have all acknowledged their debt to Kalecki's work on prices.
14. This equation is a weak form of equation (10) and can be derived as follows:

$$\begin{aligned} p &= mu + n\bar{p} \\ 1 &= m(u/p) + n(\bar{p}/p) \\ u/p &= 1/m[1 - n(\bar{p}/p)] \\ (p - u)/u &= [n(\bar{p}/p) - (1 - m)]/[1 - (\bar{p}/p)] \\ &= f(\bar{p}/p). \end{aligned}$$

I am indebted to A. Asimakopulos and R. Rowthorn for this point. See also Basile and Salvadori (1984–85, p. 255).

15. It should be noted that  $f$  in this case is determined by the same factors as  $m$  and  $n$  and is not, therefore, determined solely by trade union activity, as Cowling (1982, p. 100) seems to suggest.
16. The important variable is profit level, not markup, as a high markup is consistent with a low profit level if, for example, overheads are high.

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# 10

## Microfoundations: A Kaleckian Perspective

*Peter Kriesler*

*'Well! I've often seen a cat without a grin', thought Alice: 'but a grin without a cat! It's the most curious thing I ever saw in all my life' (Alice in Wonderland)*

### 10.1 Introduction

Like the relationship between the grin and the cat, the relationship between macroeconomic and microeconomic theory has left many puzzled. Over the last few decades there has been much debate as to the nature of the relation between microeconomics and macroeconomics, the so called problem of microfoundations.<sup>1</sup> In particular, the question of how one moves from analysis at the level of the individual or of the firm to analysis of the economy as a whole, has invited much controversy. The discussion about 'microfoundations' has been about the exact way in which the microeconomics fits in with the macroeconomic theory for which it is the foundation. Not surprisingly, there is a strong relationship between the type of theory being examined and the relationship posited between the microfoundations and the macrotheory. In particular, the problem seems to be greatest for neoclassical theorists, for whom the tranquil waters of microeconomic equilibrium bear a strong contrast to the swiftly moving currents of macroeconomic unemployment. As noted in the Palgrave entry on 'macroeconomics: relations with microeconomics': 'The lack of clear connection between macroeconomics and microeconomics has long been a source of discontent among [neoclassical] economists. Arrow called it a "major scandal" that neoclassical price theory cannot account for such macroeconomic phenomena as unemployment' (Howitt 1987, 273).

It is important to note that this problem is more severe for neoclassical economics than it is for either classical or post-Keynesian economics. Some

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reasons for this are considered in the next section, which is a brief historical survey on the relation between microeconomics and macroeconomics in the work of classical, neoclassical and some Marxist and post-Keynesian economists. These views are then compared with Kalecki's contribution to the problem of microfoundations. It will be shown that the way in which micro and macro theories are interrelated in Kalecki's analysis is similar to the classical approach, while differing from the others discussed. In particular, for Kalecki, neither theory dominates nor forms a constraint on the other. Rather than any form of hierarchical relationship, the two theories lie side by side (so to speak), and both give information which the other cannot give, while the interrelation of the two yields further information not obtainable from either in isolation.

## 10.2 Historical Perspectives

The classical economists treated micro and macro interdependently, without being aware of any distinction between them. Both Ricardo and Marx, for example, moved fairly easily between these levels of analysis. Ricardo talks, at the microeconomic level, of tendencies towards uniform rates of profits, the determinants of distribution and investment, and discusses profit and wage rate differentials, which are then related to the macroeconomic discussion of economic growth. Similarly, Marx moves between discussion of changes in investment and technical progress, the labour process and the role of the reserve army of the unemployed, at the micro level, and problems with realization of the surplus, with economic growth and with overproduction, at the macroeconomic level.<sup>2</sup> In other words, the distinction was not an operative one for either the classical economists or for Marx.<sup>3</sup>

As is now well known, the marginal revolution changed the focus of economic analysis away from the classical concerns with accumulation and growth towards questions of optimal allocation. As a result, the emphasis shifted towards analysis of individuals and firms isolated from the rest of the economy. It is with the work of Jevons and Walras that the establishment of what we now call microeconomics came to occupy the central stage in the study of economics. As a result, economics focused on either the analysis of individual markets (*à la* Walras and Marshall) or of individual exchange (*à la* Edgeworth). Value theory developed into the analysis of market-clearing price, and became synonymous with the whole of economics, though a minor role was still reserved for the analysis of disturbances originating from the monetary sector.

The great contribution of both Keynes and Kalecki<sup>4</sup> was to challenge this conception of economics, and to restore a role for macroeconomic analysis, albeit with quite different emphasis, via the argument of 'fallacy of

composition'. It was Keynes who formalized the distinction in economics between micro and macro in a memorable passage in the *General Theory*:

The division of economics between the theory of value and distribution on the one hand, and the theory of money on the other is, I think, a false division. The right dichotomy is, I suggest, between the theory of individual industry or firm and of the rewards and the distribution between different uses of a *given* quantity of resources on the one hand, and the theory of output and employment *as a whole* on the other hand (Keynes 1973, 293; emphasis in original).

The formal separation of macroeconomics from microeconomics was the result of the (bastard) Keynesian 'neoclassical synthesis', which dominated mainstream economics until the mid-1970s. Under this view, the pre-Keynesian position of competitive harmony was analyzed at the microeconomic level, while the Keynesian insight of the possibility of the persistence of unemployed resources was analyzed at the macroeconomic level.<sup>5</sup> 'The subject was split into two parts; Keynes was safely corralled in the section called "macro economics" while the main stream of teaching returned to celebrate the establishment of equilibrium in a free market. This section of the theory was described as "micro economics"' (Robinson 1979, 91).

Apart from objections by the odd outsider, such as Joan Robinson, the incompatibility of these two positions was, over that time, largely ignored. It was the recognition of this incompatibility, and the effort to achieve harmony between the two branches of mainstream economics, which became referred to as the quest for microfoundations.

Most economists associated with 'neoclassical' general equilibrium deny any separate identity for macrotheory, which is perceived as being some sort of aggregate of micro relations: '[T]he microeconomic general equilibrium view would implicitly deny that aggregate *theorizing* could provide any significant insight that was *logically* unattainable from a more rigorous disaggregative approach' (Weintraub 1979, 7; emphasis in original).

Economists in this tradition, if they attempt to 'do macroeconomics', do so by deriving 'macroeconomic' results – such as non-market clearing equilibria – in general equilibrium models. In other words, the search for 'microfoundations' is reduced to an attempt to generate so-called macroeconomic results, in particular the existence of unemployment, in microeconomic models. By denying legitimacy to any 'holistic' approach<sup>6</sup> they reject the criticism, made by both Keynes and Kalecki, that there is a fallacy of composition involved in drawing macro conclusions from micro theory.<sup>7</sup> The underlying assumption behind this approach is that microeconomic theory is fundamental, while macroeconomic theory is only relevant when derived from it. This sort of dismissal of macroeconomics is found most often in the works

of general equilibrium theorists. For example Hahn, in a book surprisingly called *Equilibrium and Macroeconomics*, writes:

I am a reductionist in that I attempt to locate explanations in the actions of individual agents.... My conviction that [this] is the right approach is pretty strong. For instance, although I have no difficulty with the idea of class I have not been able to give meaning to 'class interest' of the actions of a class until these interests and actions have been located in the individual members. Again I am quite prepared to accept that 'the whole may differ from the sum' but it seems only comprehensible when one starts at the level of the individual (Hahn 1984, 1–2).

'Macroeconomics is different from microeconomics'. If it is then I for one do not know what it is. It can hardly be the case that models which look on the world as if it were a single firm, a single household, and a single good thereby create some new kind of economic theory....

In our present state of knowledge, macroeconomics is simply the project of deducing something about the behaviour of such aggregates as income and employment from the microtheory which we have. The whole enterprise of giving microfoundations to macroeconomics is therefore misnamed. If macroeconomics before this enterprise was innocent of microeconomics it is not easy to see that it was anything at all. (*ibid*, 311).

The debate has also been taken up by some non-mainstream economists. As a result, we can identify a second approach to the question of the relationship between microeconomic and macroeconomic theory, most clearly associated with economists working within either the Marxist<sup>8</sup> or the post-Keynesian<sup>9</sup> tradition. These economists see major constraints derived from the macro level binding and limiting the actions of individual units at the micro level. In other words, macroeconomic phenomena, such as the level of aggregate demand and unemployment, place constraints on the activities of individual firms and agents:

[These economists] consider macroeconomics to have been cut free by Keynes, from standard microeconomic analysis and consequently the way is open to them to reconstitute microtheory to support explicit Post-Keynesian analysis. From such a perspective the problem of 'what microfoundations for macroeconomics?' becomes an extrapolation of macroeconomic reasoning back to the behaviour of individual units (Weintraub 1979, 13).

In this type of analysis, it is the macroeconomic theory which is seen as, in some sense, fundamental, with the microeconomic analysis having to conform to it.

We can take these two cases as extreme reference points. The first sees macroeconomics as a pure aggregation from the micro, with no new information

resulting from the aggregation that is not already in the micro-theory. On the other hand, the second view can be characterized as regarding the micro as a pure disaggregation from the macro, with the macro imposing constraints on the behaviour of individual agents. In the next section it will be argued that Kalecki's analysis represents a significant break from both of these positions, and a return to the perspective of the classical economists.

## 10.3 The Kaleckian Approach

### 10.3.1 Background

Over the thirty years of his English writings on microanalysis, Kalecki significantly modified his analysis of pricing and distribution from the original English version in 'The Determinants of Distribution of National Income' (1939), to the final version in the posthumously published 'Class Struggle and Distribution of National Income' (1971).<sup>10</sup> Despite these changes, there are certain features common to all versions of the analysis. Kriesler (1987) identified the stimulus for the modifications to the theory for Kalecki attempting to improve the incorporation of the analysis of the firm and of imperfectly competitive industries into his analysis. However, further reasons for this were also suggested. In particular, it was argued that Kalecki was attempting to formulate the models in such a way as to make the determination of the shares of wages and profits in the national income independent of the level of output, and the determination of gross profits independent of both prices and relative shares.<sup>11</sup> In many ways this division corresponds to a micro/macro distinction. In particular, the analysis of distribution is derived on the basis of the behaviour of individual firms, so it can be considered as micro-economic. On the other hand, the level of gross profits cannot be determined by aggregating the behaviour of individual units. This is because (as is shown below) there is a fallacy of composition involved in adding the behaviour of individual capitalists to derive their 'aggregate class' behaviour: what is true for capitalists as a class will not be true for individual capitalists (and vice versa). This justifies our calling this analysis macroeconomic. Kalecki was attempting to make his micro and macro theories independent of each other. This is apparent in his concern to remove the influence of industrial composition from the microanalysis and the determination of the wage share. It was the difficulties with achieving this independence which partially explain Kalecki's efforts at reformulating the analysis.

The purposes of this section are firstly interpretive, to attempt to logically reconstruct some possible reasons for this constant change, and to understand why Kalecki had this overriding concern with making the two types of analysis independent; and secondly normative, in that it attempts to draw some more general implications from Kalecki's analysis.

As we are primarily concerned with understanding what Kalecki was trying to do, rather than what he succeeded in doing, the problems with and the

limitations of his analysis of pricing and distribution will not be considered. Rather, attention will be focused on what may be called Kalecki's 'pure' model. That is to say, we proceed on the basis that Kalecki was able to achieve the independence of pricing and distribution from the level of output, and of gross profits from pricing and distribution, for which he was striving.<sup>12</sup>

At this stage two limitations to our argument should be noted. Firstly, we consider only Kalecki's writings from 1938 on. An important omission is his 1933 paper 'Outline of a theory of the business cycle'. In that paper there is a footnote reference to a relation between aggregate production and profit per unit of output due to the role of overheads. However, this relation is not referred to elsewhere in his English writings, where the main determinant of 'the relative share of gross capitalist income and salaries in the aggregate turnover' is the average mark-up (Kalecki 1938, 102). In the early works, manual labour's share is determined by the average mark-up and the relative price of raw materials (Kriesler 1987, 37), while in the later works 'changes in the industrial composition of value added' are introduced as an additional determinant (Kalecki 1954, 29). The second limitation is that we are only concerned with Kalecki's 'pure' model – that is, a model of a closed economy with no government and in which workers do not save. The reason for concentrating on this simple model is that it highlights the underlying relations. When the model is made more complex by, for example, introducing government, workers' savings and an open economy, these basic relations become obscured.<sup>13</sup>

In order to understand the relation between the micro and the macro analysis in Kalecki's works, it is useful to concentrate on those writings which incorporated both, in particular, his three books on capitalist economies: *Essays in the Theory of Economic Fluctuations* (Kalecki 1939), *Studies in Economic Dynamics* (Kalecki 1943) and *Theory of Economic Dynamics* (Kalecki 1954).<sup>14</sup> In the preface to the first of these volumes, Kalecki states that: 'These essays, though formally independent, nevertheless constitute a whole. Each of them treats a problem which is interesting in itself, but at the same time it prepares the ground for the succeeding essays. In particular the first five essays lead up to the sixth, which contains a theory of the business cycle' (Kalecki 1939, 10).

The order in which subjects are presented for analysis in this book is significant, and it is the same order as in his other two books, in English, on capitalist economies cited above. All commence with the microeconomic analysis of pricing in the manufacturing sector, and of the determination of the relative share of manual labour in national income. They then consider the determinants of aggregate variables such as the total profits and level of national income, the rate of interest and investment, before culminating in a discussion of the business cycle. The sequence is important because it reveals Kalecki's microanalysis as a stage in the development of his theory of business cycles, which (as the quotation above also indicates) was his main interest. In other words, the role of the microanalysis has to be understood in terms of its contribution to the analysis of the business cycle, and, therefore to the macroanalysis.



### 10.3.2 The Role of the Macroanalysis

To understand the role of the macroanalysis, it is appropriate to consider its clearest statement, in a pamphlet which Kalecki published in Polish in 1939 entitled *Money and Real Wages*.<sup>15</sup> Kalecki's analysis starts by isolating the two main assumptions in what he describes as 'the Classical Theory of Wages', but is more usually described as 'neoclassical' theory. These are, firstly, the assumption of perfect competition and of the so called 'law of increasing marginal cost', and secondly 'the assumption of a given price level or a given value of the aggregate demand' (Kalecki 1936b, 40). Although Kalecki immediately signals skepticism about the appropriateness of the law of increasing marginal costs, it is initially accepted for the sake of the argument. Its effect, Kalecki notes, is that rises in employment must be associated with a decline in real wages. With money wages given, aggregate output and employment can only increase if the price level also increases, causing real wages to fall. 'Thus from the "law of increasing marginal costs" follows the inverse relationship between production and the real wage' (*ibid.*, 42).

Causality, however, runs from the increase in employment to the reduction in real wages and not vice versa. According to Kalecki, the arguments favouring decreasing money wages in order to increase employment rely on an assumption of a given level of aggregate demand. If this is the case, then a reduction in money wages will lead to an increase in production due to increased profit margins, with prices initially stable. This will eventually cause prices to fall, as the same aggregate money demand is now spread over more goods. At the same time, marginal costs will rise due to the increase in output. Equilibrium is restored when marginal costs are, once again, equal to their respective prices. At this new equilibrium, provided wages have fallen more than prices, production and employment are greater than at the old equilibrium, and real wages are lower (*ibid.*, 43). Kalecki was extremely critical of the basic assumption of this analysis, calling it 'totally unfounded', because over the business cycle both the general price level and aggregate money demand 'are subject to violent swings', (*ibid.*, 43).

Kalecki then examined the effects of a reduction in money wages, still assuming perfect competition and rising marginal costs, but dropping the assumption of a given price level and of a given level of aggregate demand. The model reflects a closed economy in which capitalists save part of their income and workers spend all their income on consumption. Kalecki represented the national income of this system as follows:

Table 10.1 National Income

Income	Expenditure
Income of Capitalists	Investment
Wages	Workers' consumption
	Capitalists' Consumption

where investment is defined as the sum of purchases of new fixed capital goods and the change in inventories.

Because workers do not save, their consumption equals their wages. By equating the income and revenue sides of the national income, it follows that:

$$\text{Capitalists' Income} = \text{Investment} + \text{Capitalists' Consumption.}$$

Given the above assumptions, workers cannot change the level of their consumption without changing the wage share. Capitalists, however, are not constrained by their income, as they can increase (or reduce) their consumption and investment above (or below) their present income by drawing on (or paying off) credit or reserves. This equation can, therefore, be interpreted as showing that the income of capitalists as a class will adjust to their expenditure, because aggregate production will reach the level at which the gross profits derived from it will equal capitalists' consumption plus investment.

As Kalecki notes: 'Therefore the capitalists as a class determine by their expenditure their profits and in consequence aggregate production' (Kalecki 1939a, 45). Kalecki demonstrates this result by reformulating the analysis using Marx's reproduction schemas. The economy is divided into three sectors, producing investment goods, capitalists' consumption goods and workers' consumption goods respectively. In sector 3, which produces workers' consumption goods, the output is partly consumed by workers from that sector, while the surplus output is consumed by workers in the other two sectors. Wages in sectors 1 and 2 are, therefore, equal to the profits received in sector 3. Schematically this can be represented as follows, with  $O_i$  ( $i = 1, 2, 3$ ) being the output of Sector  $i$ ,  $I_i$  its investment,  $W_i$  its workers' consumption, and  $C_i$  the consumption of its capitalists:

$$O_1 = I_1 + C_1 + W_1 = I_1 + I_2 + I_3 \quad (10.1)$$

$$O_2 = I_2 + C_2 + W_2 = C_1 + C_2 + C_3 \quad (10.2)$$

$$O_3 = I_3 + C_3 + W_3 = W_1 + W_2 + W_3 \quad (10.3)$$

where  $I_i + C_i$  correspond to the profits in the  $i$ th sector. From the above it is easily shown that:

$$I_3 + C_3 = W_1 + W_2 \quad (10.4)$$

Some implications of Kalecki's use of these schemas can now be examined. Consider the effects of an increase in investment caused, for example, by an improvement in entrepreneurial confidence. This leads to an increase in output, employment and wages in sector 1. In turn, this increases workers'

consumption which boosts production in the wage goods sector (sector 3). If capitalists' consumption remains unchanged, aggregate production will expand until profits increase by the same amount as the increase in investment. Any increase in capitalists' consumption will further increase profits and production.

This demonstrates that the main result of the macroanalysis is to show that aggregate profits are determined by the expenditure decisions of capitalists as a class. It is important to realize that, although this is true at the aggregate level, it does not follow at the level of individuals. If any individual capitalist increases his/her expenditure, then the increase in profits will not necessarily accrue to him/her, but will rather go to another capitalist. This is why we have called the analysis 'macroanalysis'. For capitalists as a class, any increase in expenditure will lead to an equal increase in total profits, although this is unlikely to be true for individual capitalists.

### 10.3.3 The Micro/Macro Link

Having outlined the role which the macroanalysis serves for Kalecki, in order to understand the link with the microanalysis, it is important to consider the role of the latter. The main function of the microanalysis was to provide the other crucial link in the determination of the level of economic activity. The clearest statement of this is in *Studies in Economic Dynamics* (Kalecki 1943). After deriving the determinants of pricing and distribution, Kalecki, in the third essay ('A Theory of Profits'),<sup>16</sup> assigns the microanalysis a crucial role:

[These] factors...will affect not real profits but the real wage and salary bill and consequently the national output. If, for instance [, the] degree of market imperfection or oligopoly increases, and, as a result, so does the ratio of profits to wages, real profits do not change, but the real wage bill falls, first, because of the fall in real wage rates, and secondly, because of the consequent reduction in demand for wage goods, and thus of output and employment in the wage-good industries... [Mark ups] increase, but the national output falls just so much that, as a result, the real total profits remain the same. However great the margin of profit on a unit of output, the capitalists cannot make more in total profits than they consume and invest (Kalecki 1943, 50).

This passage is of great importance in understanding the link between Kalecki's micro and macro analysis. Gross real profits are determined by the capitalists' consumption and investment decisions. With total profits, capitalists' consumption and investment determined in real terms, so too are the levels of output and employment in the investment goods sector (sector 1) and the capitalist consumption goods sector (sector 2). Therefore the micro-factors which determine the distribution of income will act through real

wages, and hence influence the level of national output via their impact on the wage goods sector (sector 3). Changes in these microfactors, such as changes in the degree of monopoly, therefore, cannot affect gross profits, but they will influence employment and output in the wage goods sector.<sup>17</sup> So an increase in the mark up increases profits in the investment and capitalist consumption sectors, at the same time reducing wages in those sectors. The subsequent reduction in demand for wage goods reduces output and employment in that sector, and also reduces profits. The reduction in profits in the wage goods sector is equal to the increased profits in the other two sectors, so that total profits remain unchanged. In other words, the main function of the macroanalysis was to explain the determination of total profits, while the main function of the microanalysis was to determine the wage share in national income. The two together determined the level of national income.<sup>18</sup>

Joan Robinson has often stressed this important point: 'The most important point in Kalecki's analysis is the demonstration that the overall rate of profit cannot be raised by raising the degree of monopoly. A higher proportion of profit margins leads to lower real wages and lower utilization of plant, not to a higher overall total profit' (Robinson 1969, 261). In her subsequent tribute to Kalecki in the *Oxford Bulletin of Economics and Statistics*, the importance of this argument is emphasised:

There are two elements in Kalecki's analysis, the share of profit in the product of industry is determined by the level of gross margins, while the total flow of profits per annum depends upon the total flow of capitalists' expenditure on investment and consumption. In this way, Kalecki was able to weave the analysis of imperfect competition and of effective demand together and it was this that opened up the way for what goes under the name of post-Keynesian economic theory (Robinson 1977, 13–14).

This analysis represents Kalecki's version of the paradox of thrift. Recall that, for Keynes, the paradox of thrift was an example of the fallacy of composition, whereby any individual can increase his or her saving by increasing their marginal propensity to save. However, if the entire community attempts to increase its saving in the same way, without changing investment levels, all that happens is that the increase in marginal propensity to save reduces equilibrium income to the level where total saving is again equilibrated with the unchanged level of investment. So what is true for the individual is not true for the economy as a whole. Similarly with Kalecki's analysis of the role of the mark-up. Any individual capitalist can increase their profits by increasing their mark-up. However, if capitalists as a class attempt to increase total profits by increasing the average mark-up, without changing their total expenditure, then, although this will increase their share of output it will not increase total profits. Rather, output and

employment will fall, so that capitalists will have a larger share of a smaller output, with total profits unchanged. So, what is true for capitalists as individuals is not true for capitalists as a class. This explains why we have called this aspect of Kalecki's analysis macroeconomic.

We see from this the basis of Kalecki's interrelation of micro and macro analysis. The macroanalysis is important for determining gross profits, but it is in combination with the microanalysis that the level of real wages, output and employment corresponding to those gross profits are determined. The microanalysis plays a pivotal role in the determination of the level of output. The macro and the micro analysis each tell part of the story, and it is only through their interrelation that the whole account emerges.

In this way it can be seen that the micro and the macro analyses, as was stated earlier, lie side by side, existing interdependently, that is, on an equal footing.<sup>19</sup> Some things are determined at the micro level, largely independent of what is happening at the macro level. This was reflected in Kalecki's attempt to develop models of pricing and distribution which were independent of the level of output. Similarly, some things are determined at the macro level, largely independent of pricing and distribution. Both influence each other, and from their interrelation something different from either is determined: the level of aggregate output. Alternatively, we could say that, for Kalecki, the microanalysis and the macroanalysis give different information about the working of the economy, and the integration of the two gives additional information about the state of the economy and where individual units find themselves. The microanalysis of pricing and distribution determines the share of profit and wages in national income, the macroanalysis of investment and of intersectoral flows determines gross profits, and together they determine the level of output. This is in contrast with neoclassical general equilibrium economists, for whom macroeconomic phenomena are merely some sort of aggregate outcome of microeconomic relations. It is also in contrast to some post-Keynesian analysis, where the micro-relations are derived from a backward extrapolation of the macro, so that the question really becomes one of finding '*the macro foundations of microeconomics*' (Crotty 1980, 23; emphasis in original). In Kalecki micro and macro stand side by side, with important feedbacks between them. Kalecki (following Marx and the classical economists) treated micro and macro issues interdependently, without really distinguishing between them.

As has been stressed, this does not imply that Kalecki regarded them as being of equal importance. It has already been observed that the microanalysis was mainly a step towards the development of the theory of output and business cycles. This explains some of the specific features of his analysis. As the editor of his *Collected Works* has observed: 'The immediate impulse for the formulation of the degree of monopoly theory of income distribution seems to have been the need to find analytical tools which make it possible to investigate cyclical and secular changes in wages and profits as

components of national income' (Osiatynski 1979, 340). An example of this is Kalecki's discussion of changes in the degree of monopoly over the trade cycle, which has important implications for changes in the level of output in the economy as a whole. A further example of this is his concern with manual labour's share in the output of the industrial sector. This is important for the determination of workers' consumption, which Kalecki assumes to be equal to their income. The residual share of gross output will accrue to salaries and to profits, which provide the basis for capitalists' consumption. Their differential impact on effective demand explains the importance of the distinction between the income of manual workers, who consume all their income, and that of capitalists, who clearly do not. Part of capitalists' income will be saved, and used in the financing of investment, though, investment is not constrained by profits due to the difference in the constraints they face. Capitalists, unlike workers, are not bound in their expenditure decisions by their current income and can be treated as if they had a monopoly on credit institutions.<sup>20</sup> For all these reasons, Kalecki's differential treatment of wage and non-wage incomes is an important analytical device. The implications of this for the level of effective demand, and hence for the explanation of fluctuations in output, are obvious.<sup>21</sup>

Kalecki's approach to the question of microfoundations has some important implications. Although micro and macro questions may sometimes be regarded as separate areas of study, nevertheless there are fundamental interrelations. In particular, the analysis of the economy as a whole determines the position in which individual firms find themselves. Kalecki's method is, in many ways, similar to that of Ricardo and of Marx discussed above, in treating micro and macro side by side. The study of the behaviour of firms is, to an extent, independent of the analysis of macrophenomena, although there are important (dialectical) interrelations which form an equally important area of study.<sup>22</sup>

### **10.3.4 An Important Modification**

So far discussion has proceeded under the assumption that the independence of microanalysis and macroanalysis is achievable. As I have argued elsewhere (Kriesler 1987), this is not the case for Kalecki's analysis. In other words, the previous discussion must be modified so as to allow for some influence of the level and composition of output on the determination of prices and relative shares; and some influence of prices and distribution on the determination of aggregate profits. In particular, when analyzing the effects of a reduction on wages, Kalecki describes the fall in output of sector 3 relative to sectors 1 and 2. If the degree of monopoly of sector 3 is different from that of the average, then this change in output will change the average degree of monopoly, which will, in turn, lead to changes in the share of wages in total output. This will have farther ramifications on employment, depending on which direction the microfactors have gone. In other words,

the sectoral change in output resulting from a change in the real wage will influence distribution independently, via the microanalysis, therefore having second round effects on total output. In addition, once overheads are incorporated into the analysis, unless it is assumed that they accrue only to capitalists, changes in output will lead to changes in the share of profits.

Nevertheless, the general implications of Kalecki's approach need not be modified substantially. Rather, a return to the classical method of analysis by stages is suggested, once again emphasizing the similarity in method of Kalecki and the classical economists. First one considers (say) the microanalysis, which is determined by the 'degree of monopoly' with output constant. At the next stage, gross profits are determined by the expenditure decisions of capitalists, which are themselves determined by past decisions, with prices and distribution held constant. These, together, determine the level of output, which is then used to modify the previous analysis of pricing and distribution. This iterative process will continue until either the system's solutions result in stable outcomes for all the processes, or some dynamic can be determined. This approach was used elsewhere by Kalecki, where he separates the analysis into a number of logically and sequentially separate stages, with his analysis of taxation being a good example (Kalecki 1937).

According to Roncaglia this type of framework:

represents a decision to analyze each particular problem separately, one at a time, isolating one from the other. The assumptions and methods of analysis need not necessarily be the same for each and every problem. It is necessary to choose, for each particular problem, only those variables most relevant to the analysis of the problem at hand, leaving aside those factors which, as Ricardo says, lead only to 'modifications' in the analysis, but not to changes in the substance of the analysis<sup>23</sup> (Roncaglia 1978, 22).

In conclusion, it should be noted that this suggested modification will not affect the nature of the micro/macro relation within a Kaleckian framework. In fact, it clarifies the nature of the causal link, and places it in a framework of historical time. There is a definite logical sequence in which relations are determined, similar to the casual link identified by Pasinetti (1974, 44) in the works of Ricardo and Keynes.<sup>24</sup> Kalecki's original link, with the microanalysis determining the share of profits, the macroanalysis the total value of profits, and the two determining the level of output; simply needs to be modified to allow for feedbacks from each level of analysis. These feedbacks stress the interrelations between the levels of analysis which underlie Kalecki's work.

## Notes

I would like to thank Dr. G. C. Harcourt, Professor R. Rowthorn and Dr. M. Landesmann of the University of Cambridge, Dr. L. Mainwaring of the University of Cardiff,

Professor P. D. Groenewegen of the University of Sydney, Dr. P Reynolds of Staffordshire University, Dr. J. Osiatynski, the editor of Kalecki's Collected Works, Dr. C. Freedman of the University of New South Wales, Dr. Jan Toporowski of South Bank University, Dr. E. Da Fonseca of the University of Sao Paulo, Brazil, Dr. Peter Riach of De Montford University and the late Professor A. Asimakopulos for their helpful comments. The paper was given at the ESRC Political Economy workshop in 1991 and I would like to thank the participants, especially Professor V. Chick of University College London, for their helpful comments, A very early draft of this paper was unfortunately published in M. Sebastiani, *Kalecki's Relevance Today* (1989).

1. See, for example, Harcourt (1977) and Weintraub (1979).
2. See Sardonì (1987), particularly chapter 4. Note his conclusion that 'Marx's micro-framework ... reaches analytical conclusions partly inconsistent with reality' (p. 5).
3. Compare Meek (1968, 191): 'Marx, like Smith and Ricardo, made no distinction between macroeconomics and microeconomic analysis.' See also Robinson (1977a, 4–5).
4. Discussion of Kalecki's contribution is postponed until the next section.
5. Sardonì argues that 'Keynes's analytical results.... are founded on a micro-framework that proves to be either unrealistic or inconsistent' (1987, 6). In chapter 8 Sardonì engages in a Kaleckian critique of Keynes's micro-foundations.
6. See, for example, Hahn (1984, 2) and Harcourt (1977, 375–376, 380).
7. See Keynes (1973), Preface to the French Edition (especially xxxii, xxxiii) and chapter 19; Kalecki (1939a); Robinson (1951, 135) and Harcourt (1987).
8. See, for example Crotty (1980, 23) and Harcourt (1980, 27).
9. See, for example, Harcourt (1981, 9) and Pasinetti (1974, 118).
10. In Kriesler (1987) I attempted to trace the development of Kalecki's analysis of pricing and distribution and its relation to his analysis of output and employment, concluding that Kalecki was unable to capture his basic insights in a satisfactory model. See also Osiatynski (1992).
11. See also Osiatynski (1992).
12. Our approach is similar to the method of rational reconstruction in Wong (1978, 11–20). That is, we have attempted to 'reconstruct hypothetically the problem-situation in the context of which the theory was proposed.' This is not an attempt to 'delve into Kalecki's subconscious' but rather it is an attempt to reconstruct the problem which it is reasonable to argue that Kalecki was trying to solve.
13. Compare Asimakopulos (1983, 1–3, 8–13) and Rowthorn (1981).
14. The collection, *Selected Essays on the Dynamics of the Capitalist Economy (1933–70)* (Kalecki 1971) mainly reprints selections from these or other previously published essays.
15. This was translated into English and published in the final two chapters of *Studies in the Theory of the Business Cycles 1933–1939*. The paper with the same name which appears as the third essay in *Essays in Economic Fluctuations*, and which was referred to in the last paragraph, is substantially different.
16. Reprinted from the *Economic Journal* (Kalecki 1942).
17. Mott stresses the role of 'changes in rather than the level of the degree of monopoly' for changes in aggregate demand (Mott 1992, 117; emphasis in original).
18. In Kriesler (1987) two roles were distinguished for the microanalysis. It was argued that in Kalecki's earlier works, the role of the microanalysis was to explain the inflexibility of the distribution between wage and non-wage income in the face of changes in the level of aggregate demand, while in Kalecki's later works the



microanalysis was seen as playing an important role in the determination of the level of economic activity. However, the current paper does not distinguish these roles, as it can be seen that the two are, in fact, variants of the same idea.

19. That is not to say that they are of equal importance for the analysis of output and of trade cycles, which is clearly not the case.
20. For an excellent discussion of these issues, see Marglin (1984, 126).
21. I am indebted to Jerzy Osiatynski for these observations. See also Osiatynski (1979, 339–340).
22. Similar comments are made in Robinson (1977a).
23. For further discussion of this ‘procedure by separate logical steps’, see Pasinetti (1974, 297) and the description of partial equilibrium analysis as a similar process in Rogers (1989, 184).
24. Pasinetti (1974, 44).

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# 11

## Kalecki, Classical Economics and the Surplus Approach

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So far the main successes of the surplus approach have been in providing a critique of certain variants of neoclassical theory (and to a lesser extent, of Marxian value theory). There has been much discussion of the parameters defining the framework of the new theory, but, apart from the analysis of long-period prices, not much constructive work has been done. For example, there has been little analysis of the determinants of accumulation, investment or employment within that framework. It is our contention that Kalecki's analysis can fill this gap; this paper attempts to locate Kalecki's analysis within the surplus approach, and suggests that his analysis solves many of the difficulties within that framework.

It will be useful to start by outlining the main points of distinction between the surplus approach and neoclassical theory. According to Eatwell (1979), classical theory takes as given for the analysis of value: 1) the size and composition of output; 2) conditions of reproduction, i.e., the state of technology; and 3) the real wage (or the rate of profits).

These data are used to determine relative prices and a uniform general rate of profits (or real wage). There is no presumption within the analysis of systematic relationships between changes in quantities and changes in prices or in distribution. In other words, the theory of value and the theory of output are analytically separable, so that the forces determining value are not necessarily the forces determining the composition and level of output.

Two important features of classical theory are relevant to the following discussion. First, prices are equal to costs of production, and, secondly profits are the source of, and motive for, accumulation, and hence provide the engine that drives the economic system – the source and the motive

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Revised from *Review of Political Economy*, 3(1): 79–92, 1991, 'Kalecki, Classical Economics and the Surplus Approach', by Halevi, J. and Kriesler, P With kind permission from Taylor and Francis Online <http://www.tandfonline.com/doi/abs/10.1080/09538259100000006>. All rights reserved.

for accumulation. Within the surplus approach the classical distinction between the agricultural sector and the manufacturing sector with respect to the analysis of pricing, investment etc. is maintained, although the importance of the distinction is seen as being transformed with the development of capitalism.

Neoclassical theory, on the other hand, takes the following as given: 1) preferences of economic agents; 2) Technology; and 3) The size and distribution of initial endowments. With these, and using the principles of maximizing individuals and of substitution, prices, quantities and distribution are simultaneously determined by the forces of supply and demand. In other words, the theory of value, the theory of output and the theory of distribution are aspects of a single, all-embracing theory.

On the criteria discussed above, Kalecki's analysis cannot be regarded as neoclassical. First, preference sets and maximizing individuals play no role in his analysis. Rather, the starting point is at a different level of abstraction, with firms and classes. Neither the size nor the distribution of endowments are fundamental to his analysis. Demand, under normal conditions of modern capitalist economies, plays no direct role in the determination of prices in the manufacturing sector, although it may play an indirect role as demand may influence raw material prices. Finally, in Kalecki, the theory of value and the theory of output are not the same theory, although there are links since changes in prices may affect distribution and, therefore effective demand and output (see Kriesler, 1987: Chapter 6).

We find a much closer correspondence between the static variant of Kalecki's value theory and classical analysis. In Kalecki, as was noted above, the level of output has little direct influence on prices as long as there is excess capacity. The conditions of reproduction are given. However, although the money wage is given, the real wage is not exogenously determined, but is determined along with relative prices by the independently given markup (expressed as a value added on costs), which is itself determined, in oligopolistic markets by the degree of monopoly. The theory of output and of value are separable. Indeed, one objective of Kalecki's micro-analysis of prices is to render the latter independent of the macrotheory of output (see Kriesler, 1989). Prices are equal to costs of production at levels of output less than full capacity utilization, which Kalecki saw as being the normal state of affairs under monopoly capitalism. Demand only plays a direct role in the determination of manufacturing prices outside the normal operating conditions of the economy, that is, when firms operate at full capacity, given the initial costs of production. Changes in these costs, even at full capacity will still influence prices, so that even at full capacity, cost of production plays an important role in the determination of prices. In Kalecki, there is also the classical dichotomy of the agricultural sector with increasing costs due to the fixity of land, and the manufacturing sector with constant returns, although the distinction serves different functions

within the analysis. In addition, in Kalecki's analysis there is a restatement of the classical analysis of distribution as analysing the *share* of national income accruing to social classes. This is in contrast to the neoclassical theory's concern with factor pricing as a special case of price theory.

For Ricardo, the rate of profits was given by the ratio of the difference between the labour embodied in the net product (NP) and the labour embodied by the capital advanced to produce that product (W) (i.e., the labour embodied in the wage bill) to the labour embodied in the wage bill ((NP-W)/W). Compare this to Kalecki's early treatment of the average degree of monopoly as the share of profits plus overheads (see, for example, Kalecki, 1938; 1939). This is equivalent to the ratio of the difference of price and marginal costs to price ((P-MC/P). In the case of vertically integrated industries, in a closed economy, all marginal costs are labour costs. The weighted average degree of monopoly, which is equivalent to the share of profits plus overheads in national income, is conceptually similar to Ricardo's rate of profits – with differences arising due to Kalecki's incorporation of fixed capital and overheads. Without these the two concepts would be equivalent.

Kalecki shares with the classical economists, and with Marx, a concern primarily with reproducible goods as opposed to commodities which derive their value from scarcity alone. Coupled with this is an emphasis on capitalism as a dynamic structure, propelled by the process of accumulation over time. The dynamics of the system result from investment or accumulation out of the surplus. Kalecki's analysis of the macromovements of the system are based on Marx's reproduction schema, and focus on Marx's distinction of the capital goods producing sector and the consumption goods producing sector.<sup>1</sup>

In Kalecki's analysis, monopoly capitalism represents a particular historical phase of capitalist society which is the phenomenon unique to that stage, and requires a 'new' explanation. There emerge, for example, new forms of competition which may counteract any tendency towards uniformity in rates of profit, so that the earlier importance of price competition tends to break down, with nonprice competition becoming the norm (see Kalecki, 1971: 49–50; Steindl, 1976: Chapter 5; Baran and Sweezy, 1968: Chapters 2 and 3). This, in turn, has implications for the realization of the surplus. Kalecki denied that the 'perfect competition' of neoclassical theory was a reasonable description even of the earlier more competitive stages of capitalism.<sup>2</sup>

Nevertheless, according to Kalecki, the development of oligopoly as the general structure of the industrial sectors of modern capitalist economies has profound implications for the operation of the economic system.<sup>3</sup> In particular, he argued that the influence of monopolistic elements, on the pricing decisions of entrepreneurs, is important for problems relating to the realization of the surplus (i.e. with problems of effective demand), and these are exasperated by barriers to entry, by increased concentration of capital and by economies of scale.

Analytically, Kalecki's Marxian roots also manifest themselves in his specific use of the reproduction schemas, the analysis of which he extended to include effective demand. In Marx, as well as in the Marxian debate over growth and crisis (the so-called 'breakdown controversy') the reproduction schemas are presented in a closed, deterministic form, so that the output of the capital goods industry, which is assumed to operate at full capacity, is always distributed between the two sectors.<sup>4</sup> While this method does hit on the issue of proportionality between sectors, it fails to capture the problem of effective demand, since the output of capital goods is always at full capacity. In Kalecki, by contrast, the schemas are in open forms. The fundamental relation is:

$$W^* = P_w$$

where  $W^*$  is the wage bill in the nonwage goods sector and  $P_w$  are total profits in the wage goods sector (see Kalecki, 1971: Chapter 7). In this way the role of effective demand is captured in a twofold manner. Firstly, endogenous profitable consumption demand comes from the wage bill in the nonwage goods industries. Secondly, there is no guarantee that  $P_w$  will be transformed into actual investment. The schemas are not closed since the sectoral distribution of investment is exogenous. In other words, due to the role of effective demand, Kalecki cannot specify a function whereby  $P_w$  is transformed into a set of capital goods  $K_w$ . To do this he would have to specify a specific investment function for the capital goods sector. In a two sector Marxian model there are only two ways of specifying such a function: via a steady state distribution of investment goods or by a nonsteady state distribution, leading to disproportionalities. In both cases, however, the problem of effective demand is pushed aside. At this point it should be noted that Kalecki considered investment the most difficult aspect of capitalism to analyse (see Kalecki, 1968: 78; 1971: viii). Nevertheless, he did not believe that the analysis of growth of modern capitalist economies could be fruitfully examined without consideration of effective demand (see Kalecki, 1970; Steindl, 1981).

While Kalecki's analysis has much in common with that of the classicals and Marx, important differences remain. Many of these relate to the fact that the two theoretical structures are attempting to describe different historical phases in the development of capitalism. Therefore the society which each is attempting to analyse is characterized by different social institutions. Kalecki always acknowledged the fact that 'the institutional framework of a social system is a basic element of its economic dynamics' (Kalecki, 1970) and, therefore, always incorporated the institutional framework into his models.

In Ricardo's *Principles of political economy and taxation* the object being analysed is early capitalism with the agricultural sector dominating the

economy and providing the engine of growth and with the competitiveness of the economy being defined in terms of capital mobility. This resulted in capital responding to profit differentials in such a way as to make a tendency towards a uniform rate of profits a major dynamic of the economy. It was this tendency which also explained the gravitation of market prices to 'natural' prices. Kalecki, on the other hand, was analysing late capitalism in which the manufacturing sector dominates the economy and provides the engine of growth, and in which imperfect competition in the form of oligopoly, is the norm (see also Steindl, 1976; Baran and Sweezy, 1968; Sweezy, 1979; Halevi, 1985). These historical developments manifest themselves in certain analytical differences between Kalecki and the classicals. In particular, barriers to entry, which may arise in a number of ways, hinder the mobility of capital and, therefore, impede the tendency towards uniform profit rates.

With the development of capitalism has come an increased role for overhead costs within the production unit. Therefore, whereas for the classical economists the surplus accrued to the capitalist in the form of profits, for Kalecki the surplus is divided between profits and overheads. Overheads share many of the characteristics which the classical economists attributed to that portion of profits which was not utilized for accumulation, that is, it is unproductive consumption so that, while productive labour creates the surplus, overheads are maintained from it (overheads here include salaries but not depreciation).<sup>5</sup>

The second important analytical difference between Kalecki and the classical economists lies in their analyses of the competitive process in the capitalist economy. As noted above for the classical economists, competition was synonymous with a tendency towards a uniform rate of profits. However, for Kalecki, the essence of monopoly capitalism lay in barriers to entry which led to the setting of price via a markup on unit costs. These were, in turn, determined by the degree of monopoly, which varied between firms, and which was part of the institutional setting (see Kalecki, 1970: 312). Markup differentials are compatible with a uniform rate of profits, as the markup is determined on the basis of variable costs and therefore is not related directly to the capital used. However, a uniform rate of profits would imply a definitive vector of markups, determined by reference to the capital used in each production process and to the level of 'normal' utilization of capital.<sup>6</sup> Although this would help alleviate many of the problems experienced by Kalecki in his attempts to derive microfoundations, nevertheless, it would be contrary to Kalecki's basic insight which related the markup to factors such as competitiveness.<sup>7</sup>

Furthermore, there are serious problems associated with calculating a rate of profit within Kalecki's analysis of pricing, distribution and the determination of output. As the rate of profit is not explicit in the former analysis, it can only be inferred by dividing the value of total profits by the value

of capital. However, this raises important questions about the valuation of the capital stock, especially if, during the analysis there are variations in the markup, and hence in prices. The problems caused by changes in relative prices for the valuation of the capital stock are well known. Even with all prices constant, changes in the degree of capacity utilization will lead to changes in the rate of profits.<sup>8</sup>

Closely related to this important difference is the fundamental methodological distinction between the classical use of long-period analysis, and Kalecki's emphasis on the short run. This follows from the earlier point, as, for the classical economists, it was the tendency towards a uniform rate of profits which provided the adjustment process of the economy to its long-period position, and market prices towards natural prices. If the market price of a particular commodity exceeds its long-period (or natural) value, then some enterprises in the economy will be earning a higher than average rate of profits. Capital released from sectors earning a lower rate of return would flow into this sector, increasing its output. This increase in output would cause the market price to fall, and this process would continue until the average (uniform) rate of profits was restored, at which point the market price would come to equal the natural price. It should be noted that no consistent story of such an adjustment process has been worked out; and some recent work – e.g. Medio (1978) and Steedman (1984) – has indicated that it may not be possible to do so. This work calls into question the process of convergence of market prices to natural prices. Medio considers a simple dynamic adjustment process in a Ricardian model and shows that convergence is by no means guaranteed, nor, if the adjustment is completed need it be stable. In any case, the dynamic process may lead to an explosion of the market price away from the natural price. Steedman considers a divergence between natural and market price for a system in which there are produced means of production and shows that above average profits may be consistent with a market price below the natural price, so that the price signals push the economy further away from the equilibrium price vector. Both these papers show that the question of 'gravitation' of market prices to natural prices is open, and a convincing adjustment analysis is needed.

It is important to note that the equality of market and natural price was never expected to be realized; rather it was recognized as a tendency which provides the adjustment mechanism of the theory. However, in a modern capitalist economy, capital movements, of the type described above, do not simply increase supply of the commodity in question. Rather they are part of a larger investment process, which is likely to be associated with the introduction of new techniques of production (Nell, 1983). Therefore, even assuming that the barriers to such direct competition are small, if investment entails technical change then the overall effect may be to further push the sector away from its long-period position. Considerations of this type, as well as his own analysis of the business cycle were what led Kalecki to reject



the idea that the long run has any independent *ex ante* existence: 'In fact the long-run trend is but a slowly changing component of a chain of short period situations; it has no separate identity' (Kalecki, 1971: 165).

This is not to argue that there is no tendency towards uniformity in rates of profits, but rather, that any such tendency is weak and that other economic forces, such as those relating to degrees of competitiveness, dominate it. Thus, in Kalecki the analysis always takes place in terms of market prices, since the analysis contains no underlying natural prices. For these reasons, any attempt to impose either a uniform rate of profits, or long-period analysis onto Kalecki must be rejected; as must any attempt to impose long-run (or natural) prices.

One of the main differences between the neo-Ricardians and the economists who draw inspiration from Kalecki can be found in the methodological question of the legitimacy of drawing inferences about accumulation from comparisons of long-period equilibrium positions. Long-run equilibrium positions are defined as: 'the "centre" towards which the competitive economy would gravitate in the given long-period conditions' (Garegnani, 1976: 131).

It is not the purpose of this paper to rehearse the debate over the legitimacy of the long-period method. The interested reader is referred to Garegnani (1976) and Robinson (1974; 1980). Suffice it to say that we accept Joan Robinson's position on this issue until some coherent dynamic adjustment process is specified which can describe the 'traverse' from one equilibrium position to another, without the traverse itself influencing the final equilibrium position, that is, without the equilibrium being path determined.

Of relevance to the question of the validity of the long-period position is a further debate between post-Keynesians as to the appropriate role for the degree of capacity utilization. Before this debate it was generally accepted by neoclassical (see, for example, Samuelson, 1966) and post-Keynesian economists that there was a monotonically declining tradeoff between the real wage rate and the rate of profits. However, recent work by Del Monte, Rowthorn, Halevi and Amadeo (see Del Monte, 1975; Rowthorn, 1981; Halevi, 1985a; Amadeo, 1986; 1987) on the relationship between distribution, accumulation and the level of capacity utilization in long-period analysis, has cast doubt on the generality of this relation in situations where the degree of capacity utilization is variable. The neo-Ricardians argue that the classical form of the wage/profit relationship remains unaffected in the long run by the rate of capacity utilization, as variations in the degree of capacity utilization are seen to occur only in the short run. However, to maintain this position, they must postulate a long-run adjustment of capacity to demand so that the actual rate of utilization tends towards the desired one. We shall demonstrate that this postulate implies a very strong tendency towards a steady state and so is of limited relevance in analysing accumulation. To illustrate this, we present a simpler model than Amadeo's, which despite being of a one sector kind contains a price equation. Instead we express

everything in real terms. The basic assumptions are that no wages but all profits are saved (as in Amadeo).

$$Y = \mu\alpha K \quad (1)$$

where  $\mu$  is the degree of capacity utilization,  $\alpha$  the full capacity output-capital ratio,  $K$  the stock of capital and  $Y$  the level of income,

$$P = Y - W \quad (2)$$

where  $P$  is profits and  $W$  is total wage bill.

$$W = wk\mu K \quad (3)$$

where  $w$  is the wage rate and  $k$  is the labour capital ratio at full capacity.

Equations (1) and (3) tell us that the one sector model is of a fixed coefficients kind, so that output and employment move in strict proportion to changes in the utilization rate. Substituting (1) and (3) into (2) and dividing by  $K$  we obtain:

$$r = \mu(\alpha - wk) \quad (4)$$

where  $r$  is the rate of profits.

For the neo-Ricardians, the competitive process which pushes the system tends towards fully adjusted situations whereby  $\mu = \mu^*$  where  $\mu^*$  is the desired level of capacity utilization. Clearly if this were so an inverse relationship between wage rates and rate of profits will always exist. However, within Kalecki's framework, there is no such tendency. In the case where  $\mu$  is not fixed at  $\mu^*$  or does not tend towards  $\mu^*$ , the classical inverse relationship does not hold. More precisely differentiation of (4) yields:

$$(dr/dw) > 0 \quad (5)$$

only if:

$$(\alpha - wk)/\mu k > (dw / d\mu) \quad (6)$$

The above relation means that the rate of profits and the wage rate are positively related if the ratio between the increment in the wage rate and that in the degree of capacity utilization is smaller than the ratio between potential and actual output ( $1/\mu$ ) multiplied by the full capacity surplus per worker at the initial wage. In a Kaleckian framework, the higher the ratio of potential to actual output the higher the degree of monopoly and this implies a higher surplus per worker.

The neo-Ricardian assumption of an adjustment of capacity to demand in fully adjusted situations requires a uniform rate of profits. As noted above, the tendency towards such a uniformity has been questioned by a number of authors on the basis of models which do not take into account the rate of utilization.

In Appendix 1 we have extended the analysis to consider the steady-state solution to the two sector case. It is shown that: 1) The rate of utilization of the capital goods sector enters in the profit rate equation of both sectors (Equations (8) and (9)); and 2) in the capital goods sector the rate of profits depends also on the distribution of the flow of investment goods to the capital goods sector, but the rate of profits in the consumption goods sector is determined by the initial distribution of capital stock in the capital goods sector and by the ratio between the flow of investment goods to the consumption goods sector and the initial share of capital stock in the consumption goods sector (Equations (8) and (9)). This means that the tendency to a desired rate of utilization  $\mu^*$  implies a target rate of utilization in the capital goods sector  $\mu_i$ . Capitalists should therefore fix a target rate  $\mu_i$  and adjust the distribution of capital goods flow over time such that in the long run the distribution coefficients for the stock of capital and that for the flow of capital goods tend to coincide. Indeed only on that basis can a tendency towards a uniform rate of profits be envisaged.

Conceptually, the problem is similar to the cases discussed in the literature on growth theory in which, if a system is out of a steady state, it is unlikely that it will succeed in getting into a steady growth path (Hahn, 1985). Furthermore the ability to converge to a target rate of utilization (determined exclusively in the capital goods sector) implies a successful 'traverse'. However as shown by Hicks and Lowe (Hicks, 1965<sup>9</sup>; Lowe, 1976) a successful traverse is a remote possibility and it becomes virtually unattainable in Lowe. Finally, and perhaps more importantly, the fact that the key element is a target rate of utilization in the capital goods sector, implies that to achieve it the consumption sector has to be passively towed by the capital goods one. Convergence to the rate  $\mu_i$  means that capitalists in the capital goods sector make investment decisions also for the other sector. Now, while it is structurally true that in a two sector Marxian model accumulation and growth depend, for any given technology, on the amount of investment in the capital goods sector, it is not correct to establish an actual investment behaviour of this kind. In a demand determined economy, capitalists in the consumption goods sector will have their own target rate of utilization which only by a fluke will coincide with the target rate set by the capitalists in the capital goods sector.

In the above discussion there is an important distinction between 'normal' or 'desired' levels of capacity utilization and actual levels for the long period. If the two coincide, then there is no analytical distinction between full capacity utilization and normal capacity utilization. Therefore it is

important to consider whether there is a tendency for actual levels of capacity utilization to gravitate towards normal levels. Clearly this is the 'quantity' analog to the gravitation of market prices to natural prices.

Typically the literature on capacity identifies two reasons why the actual level may not converge to the desired level. The first sees the level of unused capacity as a barrier to entry, so that it, rather than prices, becomes the battleground where the successful entry of a new firm can be blocked via the threat of reducing the level of excess capacity (see, for example, Sylos-Labini, 1969; Steindl, 1976). Related to this, excess capacity may be used as a precautionary device, as a buffer to even out cyclic and seasonal variations in demand. The level of excess capacity laid down for this purpose clearly depends on expectations.

In this paper we have attempted to establish links between the analysis of Kalecki and the surplus approach by analysing both the features they share and those on which they differ. In particular, while the general theoretical frameworks may overlap, there are important methodological differences resulting from their different conceptions of the competitive process. The neo-Ricardian conception provides the rationale for long-period analysis, as competitive forces induce a systemic tendency to uniform rates of profits and full capacity utilization. For Kalecki, on the other hand, modern capitalist economies are not characterized by such forces; so that the competitive process is imperfect and cannot perform the function it does for the neo-Ricardians. The implications of this for Kalecki led to the abandonment of a tendency towards uniform rate of profits, in conjunction with the postulate of general excess capacity resulting in the denial of any analytically distinct existence for long-period analysis.

## Notes

1. On the relation between Kalecki's theory of profits and Marx's reproduction schemas, see Sardoni (1989).
2. 'Let me immediately add that [perfect competition] is a most unrealistic assumption not only for the present phase of capitalism but even for the so called competitive capitalist economy of past centuries: surely this competition was in general very imperfect. Perfect competition when its actual status of a handy model is forgotten becomes a dangerous myth' (Kalecki, 1971: 158). It should be made clear that, neither classical nor neo-Ricardian economists equated competition with the perfect competition of neoclassical theory. Rather, they associated competition with mobility of capital so as to ensure a uniform rate of profits.
3. This is well described by Dobb: 'one might say that, while the classical Marxian explanation for the emergence of surplus-value continues to apply to modern capitalism, as to its earlier stages, the influence of monopoly enters in as an additive element in the stage of monopoly capitalism' (Dobb, 1973: 269–70).
4. In Marx output is always at full capacity due to the assumption of free competition, (see Sardoni, 1987; 1989).
5. For a discussion of Kalecki's treatment of overhead costs, see Kriesler, 1987: 44–45.

6. Kalecki has pointed out that any adjustment to a uniform rate of profits is more likely to result from adjustment in the level of capacity utilization than through variations in the markup (Kalecki, 1941).
7. Of course there would still be a mathematical average rate of profit, but it would not have any operational significance. This is part of Sweezy's criticism of the significance of the average rate of profit as the factor establishing the centre of gravitation, he takes up a similar stance to the one discussed: 'the competition of capitals leads, via the twin phenomena of concentration and centralization. . . . to the replacement of free competition by various forms of monopoly. This in turn means that the mechanism whereby an average rate of profit is formed ceases to operate in the assumed way . . . . An average rate of profit still exists in the mathematical sense, but it is not one which tends to impose itself on individual capitals and it does not govern the distribution of surplus value throughout the system as the average rate of profit does under competitive conditions' Sweezy (1979: 9). This supports our earlier contention that, under monopoly capitalism, the mechanism by which the surplus is realized has changed. Profit rate differentials can be incorporated into the neo-Ricardian model, see, for example Mainwaring (1977). However, profit differentials must be given for the analysis, so that it is short run, and the question of adjustment is not relevant.
8. The debate on the role of the degree of capacity utilization within the surplus approach, and its implication for the wage/profit curve will be discussed later.
9. Hicks's analysis of the traverse uses a model extremely similar to that of Sraffa, see Hicks, 1985: 132n; Kriesler, 1989a: 11–12.

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## Appendix 1

Below we consider a closed economy with an investment and a consumption goods sector and consider the Marxian equations for 'equilibrium' flows between the sectors

allowing for the possibility of excess capacity. It is assumed that all profits are saved ( $S_\pi = 1$ ) and all wages are spent ( $S_w = 0$ ). Further, we abstract from depreciation so that gross investment is equal to net investment. We define:

$$K = K_i + K_c \quad (1)$$

where  $K$  is the initial total capital stock and  $K_i$  and  $K_c$  are the initial capital stocks in the investment and consumption goods sectors respectively.

$$X = X_i + X_c \quad (2)$$

where  $X$  is the output of capital goods and  $X_i$  and  $X_c$  are their respective sectoral allocations.

In this equation  $X_i$  represents physical investment in the investment goods sector, that is, investment goods which are ploughed back into the investment sector.

We define

$$\begin{aligned} X_i / X &= n \\ X &= \alpha \mu_i q K \quad K_i / K = q \end{aligned} \quad (3)$$

where  $\mu_i$  is the level of capacity utilization in the capital goods producing sector, and  $\alpha$  is the full capacity output of the investment goods sector, i.e.  $\alpha = X^* / K_i$ . If  $S_\pi = 1$  and  $S_w = 0$  in all sectors, then, with equation (3):

$$\pi_i = P_i X_i = p_i n X = P_i n \mu_i \alpha q k \quad (4)$$

where  $p_i$  is the unit price of capital goods.

So, to derive that sector's rate of profit ( $r_i$ ):

$$r_i = (\pi_i / p_i q K) = n \mu_i \alpha \quad (5)$$

Therefore in the profit rate equation of the investment goods sector the sectoral rate of capacity utilization ( $\mu_i$ ) does enter, but not  $q$ . What matters is the distribution coefficient of the newly produced investment goods  $n$ .

Profits in the consumption goods sector ( $n_c$ ), by the Marx/Robinson condition of equilibrium flows between sectors, are equal to the consumption good sector's purchase of capital goods ( $p_i X_c$ ).

$$\pi_c = p_i X_c = p_i (1 - n) \alpha \mu_i q k \quad (6)$$

So, if  $r_c$  is the rate of profit in the consumption goods sector:

$$r_c = \pi_c / [p_i (1 - q) K] = q(1 - n) \alpha \mu_i / (1 - q) \quad (7)$$

That is, the degree of utilization of the consumption goods sector does not enter into that sector's rate of profit equation, although the degree of utilization of the investment goods sector does.

For uniform rates of profit between the sectors:

$$r_c = r_i \quad (8)$$

Then, by equations (5) and (7):

$$q = n \quad (9)$$

That is, we would require:

$$K_i/K = X_i/X \quad (10)$$

In our two sector framework only the rate of capacity utilization in the capital goods sector enters into the profit rate of both sectors. The ratio between the two profit rates is given solely by the initial distribution of the stock of investment goods. This brings us back to the question of whether a tendency for  $n$  and  $q$  to be equal exists. The answer is in the negative since the equalization of profit rates is possible only with a tendency towards a steady state, balanced growth. In general such a tendency does not exist.



# 12

## Kalecki's Conception of the Economic Cycle and State Intervention

*Joseph Halevi*

It is the intention of this paper to draw attention to Michał Kalecki's contribution to the discussion of problems concerning full employment as well as to the definition of State intervention in this context.<sup>1</sup> This subject is one about which very little has been published in Italy and which is worthwhile reviewing because it can offer a valid point of reference for increasing understanding of the relationship between full employment and State intervention on the one hand and deficit spending and the inflationary process on the other.

Kalecki, together with Keynes, was responsible for the revolution in economic thinking during the nineteen-thirties, and it was precisely for this reason that he never espoused the idea that State expenditure was a miraculous cure-all; on the contrary, he always took pains to emphasize not only its economic but also its institutional limitations. This critical approach to the theories to whose development he had himself contributed enabled him to foresee, as early as the beginning of the nineteen-forties, some of the problems that were to assume critical importance for the capitalist economies of Europe during the past two decades. These included, among others, wage pressures on the economy and the relationship between State spending and the institutional nature of the Western economies which, *in 1943*, gave rise to Kalecki's views on the stop-go characteristics that European economic development were to assume in the post-war decades.

Kalecki was not only an original precursor of Keynes but also, in 1944, anticipated one of the basic concepts of the modern theory of public finance, namely, Haavelmo's theorem, together with specific possibilities of its application. Lastly, his formulation of the State intervention hypothesis and in particular his analysis of the difficulties it raised constitute a brilliant combination between his theoretical approach and the conclusions he draws from

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his study of specific experiments such as the New Deal, the Blum experiment in France and the economic development of Nazi Germany (Kalecki, 1935, 1938, 1943).

The analysis of Kaiecki's contribution is subdivided into three parts in this paper. The first part contains a description of the general ideas governing the formulation of Kaiecki's assumptions, which are set forth and discussed in detail in the second part. The third part is devoted to a consideration of some of the implications of the criteria proposed by Kalecki in respect of the limits on deficit spending.

## 12.1 The Limits to Investment

(1) For the purposes of the argument presented in this paper attention should be drawn to one vital aspect of Kalecki's theories of the economic cycle, namely, to the factors that limit investments. Kalecki's original interpretation on this point is basically different from that of Keynes.

It is well known that, for Keynes, the limit to investment is reached when the return on an additional unit invested equals the interest rate. The marginal efficiency of capital thus corresponds to a demand curve of capital assets inclined towards the right at the bottom with a finite and positive limit. The assumption on which this reasoning is based is that an increase in investment increases the cost of capital goods, thus narrowing the rate of return, whose lower limit is reached precisely at the point of equality between the rate of return of the additional unit invested and the interest rate.

Kalecki noted that this approach fails to explain really why investment should be interrupted, insofar as the increase in the cost of capital goods is an *ex-post* phenomenon whereas decisions to take action are an *ex-ante* fact (Kalecki, 1937a).

More specifically, he formulated the following problem: if there are various levels of investment with a rate of return greater than the interest rate, why do enterprises not invest as much as they like (make unlimited investments)? In particular, anticipating the objection that extremely large investments generate diseconomies of scale, he asks: "Why not start ten factories instead of one with ten independent directors?"<sup>2</sup>

Kalecki's reply may be briefly summed up in terms of the following argument. Let us assume that the curve of the marginal efficiency of constant capital is parallel to the abscissae: let us also assume that the interest rate is constant, so that it too is parallel to the x axis. This means that it is possible to have an infinite number of investments of equal amount—which is the case of the ten or more factories. However, he notes, investment is an illiquid activity because, if an incorrect decision is taken, the sale of equipment invariably incurs considerable losses. Consequently, the amount invested should bear a certain relationship to the total amount of the enterprise's capital. Accordingly, an increase in the amount invested (or in a number of

investments of similar amount) is accompanied by an increase in the risk of illiquidity: "In that situation the entrepreneur who has invested in equipment his reserves and taken too much credit, is obliged to borrow at a rate of interest which is higher than the market one,"<sup>3</sup>

The risk factor, thus determined by the difference in respect of the current interest rate which is assumed to be constant, produces a curve inclined towards the right at the top and whose intersection with the curve of the marginal efficiency of capital (constant) gives us the limit of investment.

Kaiecki's originality (in relation to Keynes) consists, through his introduction of the risk factor, in having transferred the analysis of factors that limit investment from the demand to the supply side. In point of fact the demand curve of capital assets is constant whereas the supply of liquidity declines as the amount invested rises (increasing risk). In this fashion Kaiecki establishes an explicit link between the existence of enterprises of different sizes and the existence of entrepreneurial capital of different amounts, singling out from among the formation of the enterprise's gross savings the main factor determining investments.

This link was developed in particular in his famous *Theory of Economic Dynamics* (Kaiecki, 1954) that established a relationship between the factors that determine investment and the economic cycle itself. Before proceeding to clarify this relationship which, as we shall see, is vital to an understanding of Kaiecki's views on State intervention, it is worthwhile noting that for Kaiecki, and by virtue of the assumption that investment is an illiquid activity, the formation of savings by the enterprise is closely connected with the enterprise's access to the capital market (Kaiecki, 1954). In other words, the greater the internal accumulation the easier it is for the enterprise to tap the capital market on the one hand and, on the other, the greater the possibility of increasing its own influence in the stock market through the issue of shares as the result of the inverse effect of the increase of internal savings on the risk of Illiquidity.

The possession of capital in different amounts, which implies a different availability of capital, is accordingly for Kaiecki the main explanation of the limits to investment as well as its unequal formation.

(2) We shall now attempt to clarify the relationship between the limits to investment and variations in investment as a result of sharp fluctuations in profits; this point is relevant because Kaiecki assumed that, under full employment conditions maintained by means of suitable State action, investment would be continuous or, in other words, not subject to considerable variations produced by fluctuations in profits (Kalecki, 1944). He therefore tries to identify the main reasons for variations in levels of activity that produce such fluctuations under *laissez-faire* conditions.

In this case too, Kalecki's ideas are original and complementary with respect to those of Keynes.

For Kalecki, variations in profit expectations depend on variations in productive capacity. In particular, variations in levels of expectation depend on the fact that it is impossible in a capitalist system to stabilize investment decisions at an effective investment level, or in other words to establish investment at a level corresponding to the amount of capital stock that is unused.

The main thrust of Kalecki's argument is based on the assumption of a system of discrete decisions followed by a series of continuous investments at given intervals, fixed and chosen arbitrarily, between the investment decisions and the actual investments made.

We can therefore write:

$$D_t = I_{t+z} \quad (1)$$

where  $D$  are the decisions,  $I$  the investments made respectively at times  $t$  and  $t+z$ , where  $z$  is the interval of time fixed arbitrarily.

In these circumstances, if the decisions are constant the effective investment will not vary. Let us assume that  $K$  is the capital stock and  $U$  the amount of unused fixed capital; this gives us

$$\frac{\Delta K}{\Delta t} = I - U$$

from which we obtain:

$$\frac{dK_t}{dt} = I_t \quad (2)$$

Equation (2) tells us that the variation in the capital stock in relation to variations in time is exactly equal to the amount of the investments made at time  $t_0$ . This means, in view of equation (1), that the equilibrium level is given by the equality  $D = I = U$ . However, by virtue of equations (1) and (2), the level of economic activity may never become stabilized at the equilibrium level. In particular, the time lag between decisions  $D$  and investments  $I$  creates a situation in which the capital stocks will invariably exceed the equilibrium level, thus having a negative effect on anticipated profitability and therefore on the investment decisions themselves: ". . . If investment orders remain at a constant level the production of investment goods, which is equal to the gross accumulation, will remain unchanged while capital equipment expands, investment being greater than replacement requirements."<sup>4</sup>

For the purposes of the analysis presented in the preceding paragraph, it is necessary to stabilize the link between investment decisions and the risk factor and its effect on investment by introducing capital accumulation by the enterprise into the picture.

Kalecki assumes that the level of total expenditure is determined by the spending of capitalists because the propensity at wage and salary earners to save is considered to be zero; for this reason, the level of production and employment varies only with fluctuates in spending by capitalists.

In the previous paragraph we observed that investment is limited by the risk factor because the risk of illiquidity increases with the amount invested. We can now add that entrepreneurs will take investment decisions so long as the risk factor is not greater than the difference between the anticipated profit margin and the interest rate (it is well to recall, according to the previous paragraph, that for Kalecki this difference remains constant because both the capital assets demand curve as well as the interest rate are parallel to the abscissae and therefore parallel to one another. Kalecki wonders whether, when entrepreneurs have taken decisions to invest too much during the first period, they decide not to take any investment decision at all during the next period on account of the increasing risk (Kalecki. 1937a, 1937b).

His answer is as follows: the value (amount) of the investments in the second period corresponds to the investment decisions taken in the first period (see equation (1)); moreover, the amount of savings in the second period is equal to the amount of investment in the second period, i.e.:

$$I_{t+z} = S_{t+z}$$

where S represents savings. Consequently, during the second period, capitalists as a class save an amount exactly equal to the amount of the investment decisions they took in the previous period, in other words:

$$D_t = S_{t+z}.$$

In this context a given monetary flow of investments is invariably matched by an equal monetary flow of savings. This is why, if anticipated profits do not have the effect of changing investment decisions, there is no reason why such decisions should be blocked, indeed, if entrepreneurs take "too many" investment decisions during the first period, there will be "too much" saving in the second. The savings thus generated will help, under constant anticipated profit conditions, to maintain the risk factor at a level not above the difference between the anticipated profit rate and the interest rate for the obvious reason that "too much" saving implies an increase in the availability of capital and a reduction in the risk of illiquidity. We have noted that this is applicable to the situation of capitalists as a class; Kalecki also explains what this means for capitalists as individuals and this is important to an understanding of how, according to him, the risk is spread among entrepreneurs.<sup>5</sup>

Kalecki observes that decisions constitute a flow generated by a series of individual decisions taken separately by each entrepreneur. In other words, there will be entrepreneurs who, at any given moment, will be taking decisions that are too ambitious and others taking decisions that are too

conservative. Specifically, at any given time some capitalists will, in the next period, make investments in an amount lower than the savings generated by the decisions taken in the previous period, whereas others will make investments of larger amounts by borrowing; whence: "The flow of investment decisions continuously imposes the burden of risk on some capitalists, but the equal flow of savings relieves other capitalists from this burden."<sup>6</sup>

Therefore, if at the end of any period savings are generated in an amount sufficient to maintain the risk factor at a level below (in any event not above) the difference between anticipated profit and the interest rate, the decision-making process will be infinite. This brings us back to the original problem; what blocks investments?—investments are blocked by the increase in the capital stock which cannot be stabilized at the depreciation level, on the basis of the argument already presented. The increase in the capital stock is, from Kalecki's point of view, the main factor that undermines stability. An increase in productive capacity beyond the depreciation level has a negative effect on anticipated profits, thus bringing about a cumulative process which is at the origin of the economic cycle under *laissez-faire* conditions: "What causes the periodic crisis? . . . Investment considered as capitalists' spending is the source of prosperity . . . But at the same time investment is an addition to the capital equipment and right from birth it competes with the older generation of this equipment. The tragedy of investment is that it calls forth the crisis because it is useful. I do not wonder that many people consider this theory paradoxical. But it is not the theory which is paradoxical but its subject—the capitalist economy."<sup>7</sup>

(3) Kalecki did not establish a specific link between the conclusions he drew from his analysis of factors which limit investment and which explain the existence of firms of different sizes (Kalecki, 1937b) and the analysis of the factors underlying the economic cycle (Kalecki, 1937a), except for the observation that has already been emphasized concerning the relationship between savings formation and risk distribution.<sup>8</sup>

However, in one of his articles in 1940 and another of 1944, to which we shall revert in the next section, certain links can be detected between the characteristics of entrepreneurial capital and the formation of surplus production capacity, which is the main cause of the economic cycle. In the first of these articles he maintains that bottlenecks in the functioning of the capital market are due basically to the varied and unequal possibilities of access by various enterprises to this market. This is consistent with his analysis of increasing risk in 1937 and it is on this hypothesis that Steindl's interpretation referred to in the footnote is based. In his 1944 article, devoted to possible methods of achieving and maintaining full employment he assumes, as the basis for his analysis, the existence of unused capacity in the economy, pointing out that it is distributed unequally in various sectors and among various industries; certain sectors and certain industries have a high level of

surplus capacity whereas other sectors and other industries lack an adequate level of capital stock in relation to the potential demand for their products.

A careful examination of Kalecki's articles on this question leads one to the conclusion that he viewed the existence of bottlenecks in the capital market as an expression of the existence of entrepreneurial capital of different amounts which is closely connected with the unequal formation of productive capacity. This interpretation is, moreover, consistent with the reasons given by Kalecki to explain the need for State intervention in the economy, as a means of achieving and maintaining full employment.

According to Kalecki, such intervention should be aimed at increasing the productive capacity of sectors in which it is lacking and limiting it in those in which there is an excess. The framework in which State intervention takes place should be one that reflects the objectives of ensuring an investment level corresponding to output under full employment conditions; in other words, it should correspond to the rate of population growth plus the increase in productivity.

This is the main theme of the second section of this paper. First of all, however, we shall illustrate the institutional reasons which, for Kalecki, make it highly unlikely that full employment can be achieved—the reason for which he finds in his analysis of the Blum experiment in France and the New Deal of the Roosevelt period.

## 12.2 The Obstacles to and the Means of Achieving Full Employment

Kalecki's analysis of the 1936–37 French experiment and of the economic policy of the Hitler period is of considerable relevance to the identification of the political and institutional obstacles to full employment which the author examined in a subsequent article in 1943, entitled *The political aspects of full employment*, which is remarkable for its far-sightedness. A few words should be said about its main features which will help to clarify the subsequent discussion.

(1) The assumption that Governments in the democratic countries would, if only they knew how, maintain full employment is considered misleading by Kalecki. for three main reasons: (a) the opposition of capitalists to Government interference in employment matters; (b) opposition to Government spending designed to subsidize mass consumer goods and directed towards sectors that might imply an extension of State-spending in the economy; and (c) opposition to a State spending policy designed to *maintain* full employment and not simply to prevent a recession, in view of the social changes inherent in the first aspect.

The crux of the argument is to be found in the effect of State intervention on the "confidence" of entrepreneurs. Indeed, under *laissez-faire* conditions

any decline in confidence brings about a reduction in investments which, in turn, causes a drop in production and employment. According to Kalecki, this state of affairs would provide capitalists with an extremely powerful instrument of indirect control over the Government insofar as it would be induced to avoid taking measures which subsequently would have the effect of reducing the confidence of entrepreneurs; this is precisely the social significance of the sound finance policy.

However, following the recessionary period in the nineteen-thirties, the idea of State intervention to prevent slumps came to be accepted; for Kalecki, then, the problem becomes one of identifying the extent to which public spending and the "state of confidence" are compatible. The link between these two factors is provided by the increase in private investment through suitable incentives as a means of achieving full employment. In this case, the businessman would remain the "intermediary" through whom State intervention would take place. Indeed, State action would be confined to measures taken by the monetary authorities in respect of the interest rate, which would be reduced or increased from time to time as a means of controlling investments.

According to Kalecki, the manipulation of the interest rate could be conceived of in two ways which reveal the limits to which private investment can be stimulated both to mitigate crises as well as to achieve full employment. 1. The interest rate would be reduced during a recession and increased during a boom period. In this assumption both the duration as well as the extent of the economic cycle would be reduced. However, on account of the restraint exercised by the interest rate on investments during a boom, full employment conditions would not be achieved and in fact average unemployment would remain considerable, although it would fluctuate to a lesser degree. 2. The interest rate would be reduced during a recession and maintained unchanged during a boom period. This case leads us to an anomalous situation: on the one hand the growth period would last for a longer time and on the other the interest rate would have to be subsequently reduced in the next recession. This is because the reduction of the interest rate does not eliminate the causes of cyclical fluctuations if matters reach the point of negative interest rates and corporate income subsidies. Accordingly, if there is the desire to maintain full employment, as distinct from reducing unemployment, the interest rate and corporate taxes should be continuously reduced.

One last factor that renders reliance on private investment as the main anti-cyclical instrument unreliable is the real possibility that investment is relatively inelastic in respect of reductions in the interest rate owing to the degree of uncertainty about the future, particularly during a recessionary period. As investment depends on anticipated profits, the interest rate inevitably determines the minimum level of investment, in other words the marginal efficiency of capital.



In Kalecki's interpretation, however, we must add to the interest rate a certain margin of risk which increases with the amount of the investment, because the minimum theoretical level of investment will invariably seek anticipated profits higher than the current interest rates. Consequently, even assuming extremely low interest rates, there might well be no significant propensity to invest in recessionary times and in conditions of negative expectations, owing to the effect of the increasing risk principle.

Given the relative inelasticity of investment in relation to the interest rate, even those who pin their faith in an upturn of economic activity-based on private investment assume a certain amount of State intervention, but only in order to mitigate unemployment and not to maintain full employment. Opposition to State investment to maintain full employment is, according to Kalecki, a characteristic feature not only of entrepreneurs as such, but also of other segments of society who derive their Income from sources other than work, namely, shopkeepers, *rentiers*, etc. The roots of this opposition can be traced to reasons of an institutional and social nature. The maintenance of full employment through public investment implies a gradual expansion of State spending to the detriment of individuals, namely, spending in sectors which, from an institutional point of view, fall within the State's competence, such as highways, schools, hospitals and transport, thus reducing the level of confidence.

Conditions of permanent and prolonged full employment give rise to a much more negative reaction on the part of those classes who find that their share of income as a proportion of the national income is declining. The Blum Government's return to financial orthodoxy, as well as its final collapse, were due to a large extent to the attitude of these social groups (Kalecki, 1938).

In short, the maintenance of full employment brings about a new social situation reflected principally in a relaxation of labour discipline in factories. This latter observation constitutes the cornerstone of Kalecki's analysis of the economic development of Nazi Germany viewed as the sole experiment in which full employment and the "level of confidence" were compatible one with another (Kalecki, 1935).

Before illustrating the long-term implications that emerge from this interpretation, it is worth referring to one of Kalecki's subsequent articles entitled *Three ways to full employment*, in which the author pinpoints the role of State spending and private investment in an economy where efforts are being made to achieve and maintain full employment (Kalecki, 1944).

(2) In this article Kalecki takes up the argument concerning the limited effectiveness of manipulating the interest rate which he had developed in *The political aspects of full employment* in order to propose a modified income tax as an instrument to stimulate private investment. The main characteristic of this modified income tax is that it would be imposed on gross income, and that any type of investment in fixed capital assets would be

deducted from the taxable amount without affecting the anticipated profit margin. By itself this method is incapable of achieving the desired objective, for two main reasons: 1. Because it leads to the same anomalous situation that was described previously, and 2. because the modified income tax, by favouring capitalist enterprises, could create conditions of considerable unused capacity in certain sectors, with depressive effects on subsequent investment.

Now, in view of the fact that the condition for the maintenance of full employment at any given time is an appropriate relationship between the capital stock and manpower availabilities, the dynamic requirement is that the increase in productive capacity must equal the increase in the labour force and in productivity. This relationship gives the rate at which investment should expand. However, there is no reason why the rate of investment over a long period should expand proportionately to output at the full employment level, particularly for the reason given in point 2. Moreover, however high the modified part of the tax on income from capital (the extreme case in which all income tax becomes modified income tax is obviously disregarded), if entrepreneurs entertain negative expectations due, for example, to lack of confidence in the political situation, it will be difficult to induce them to invest. Consequently, the modified tax is, for Kalecki, a useful instrument to achieve, but not to maintain, full employment.

At this point the role of the State becomes clear, and it can be seen that its two main characteristics are public investment in traditional sectors and deficit spending, on the one hand, and State investment in the private sector on the other.

The purpose of the first is the direct creation of effective demand by the subsidization of mass consumer goods and/or the maintenance of prices at a constant level, as well as the creation of public services. The choice between investment in sectors that serve the public interest and the subsidization of mass consumer goods should be made on the basis of social priorities. As both the creation of new jobs through public investment as well as support for consumer items are both decisions of a priority nature, the choice between the two possibilities should be based on the relationship between the shortfall in demand and the investment corresponding to output at the full employment level. If this gap is considerable, the concentration of government spending on investment in public sectors could be of questionable value from the standpoint of increasing aggregate demand. vice-versa, it becomes more advisable to sub-divide such spending so as to support mass consumer items, thus immediately creating effective demand, on the one hand, and to invest in the above sectors in the desired proportion on the other.

The second aspect, namely, State intervention in private spending, goes hand in hand with the first. The State's task should be to make good the shortfall in those sectors where private investment is at an inadequate level, along the lines of slum clearance projects. On the other hand, where

investment appears to be too high, the State's task should be to limit the enlargement of firms already in existence by exercising control over their expansion plans. Indeed, in this case, assuming that entrepreneurs are willing to minimize their opposition, and if costs can be reduced, unused capacity would gradually be brought back into commission through the increase in effective demand generated by the State's intervention in sectors where the level of investment is inadequate, and by investment in the public sectors as well as by the subsidization of consumer goods. However, in line with Kalecki's thinking, and in particular with his observations on the level of confidence, it is quite possible that such strict control might, particularly in the sectors where excess productive capacity is accompanied by a high degree of monopoly, bring about a decline in the level of confidence and thus create strong opposition on the part of private entrepreneurs. As a result, there would be no increase in investments, which together with the increase in effective demand would create strong inflationary tendencies likely to place the achievement of the full employment objectives in doubt. In this case one may well assume the nationalization of all or part, depending on the circumstances, of the firms in that sector. At the same time, the political problem might well arise of how to offset the negative effects of such developments on the general level of confidence, namely, in the other sectors as well, and which could be solved by converting a further proportion of the income tax to the modified basis. In the final analysis, Kalecki assumes a sort of conflict or rather permanent pressure by the State in disputes between individuals which could be settled only when they were prepared to follow the guidelines laid down by the State in investment matters in order to maintain output at the full employment level. Scepticism that the State could accomplish this task is, as we shall see in the conclusions, at the root of Kalecki's pessimism that a policy designed to maintain full employment can effectively be carried out.

So far, this discussion has been confined to a closed economy. But the arguments presented also apply to an open economy, and were developed by Kalecki in an article in 1946 (Kalecki, 1946a). Without dwelling on the arguments elaborated upon in this article, suffice it to say that Kalecki assumed intervention by the State to stimulate foreign trade when domestic demand was too low to be expanded solely in the ways described. The basic assumptions made in this article were, however, remarkably limitative: 1. all countries should strive for permanent full employment: 2. countries with surpluses should provide deficit countries with long-term low-interest loans to promote the investment necessary to achieve output at the full employment level.

(3) The originality and importance of Kalecki's contribution to thinking on State intervention consists specifically in having clearly defined, on the theoretical level, the scope of each type of intervention and especially in

having made a distinction between investment and the creation of effective demand in the strict sense of the term.

More specifically, in Kalecki's view the task of private investment is to provide the instruments necessary for the production of consumer goods, and not to create work for the existing labour force; public investment has a similar function in the sphere of deficit spending. In point of fact, on the assumption that the additional demand created by public and private investment fails to ensure full employment, the difference should be made good by an increase in consumption (subsidies, control and even reduction of prices) and not by the accumulation of unwanted public and private capital goods. This approach is, moreover, essential to economic stability and, therefore, to full employment insofar as investment declines as the capital stock increases, thus giving rise to cyclical fluctuations. And for Kalecki it is precisely the State's duty to adjust investment in such a way that the real growth rate corresponds to the desired growth rate, i.e. to output at the full employment level.

The Implications of the method suggested by Kalecki for income distribution are evident.

The creation of effective demand for consumer goods should increase *pari passu* with a redistribution of income from the upper to the lower classes. In view of the greater influence wielded by trade unions in full employment conditions it is reasonable to suppose, according to Kalecki, that wages will increase more than productivity. As prices should be maintained constant, the budgetary deficit should increase proportionately. In Kalecki's view, however, deficit spending is not the best way of redistributing income, since it fails to influence the consumption of capitalists. The course proposed is that of a gradual replacement of the budgetary deficit by an income tax having a considerable impact on high incomes, together with the maintenance of a suitably large proportion of this tax in the modified form so as not to influence investment in a negative fashion. In substance, any increase in effective demand, fixed costs and prices should be followed by a reduction in consumption by capitalists and in their liquid activities. Kalecki observes, however, that under full employment conditions, the supply of consumer goods can increase as the result of a rise in wages greater than that of productivity only at the expense of investment which, nevertheless, should be assumed to be fixed.

For that reason, the new income tax should be greater than the amount necessary to finance the subsidization of consumer goods, thus bringing about a reduction in the budgetary deficit equal to the surplus. In this context, Kalecki considers that it is the explicit task of the trade unions to negotiate higher tax rates on high incomes so that they are the ones which bear the main burden of measures to limit the increase in consumption that have to be taken when, under full employment conditions, wages increase more than productivity, prices remain unchanged and investment is given.

Another factor that contributes to the redistribution of income is the reduction of profit margins through price controls. As in the case of prices controlled by the proceeds of the income tax, this too will have a redistributive effect from the upper to the lower classes. The pressure on effective demand should therefore be balanced, under full employment conditions, by a reduction in the consumption of the high income classes. In this case too, therefore, the redistribution of part of profits and salaries should be accompanied by an income tax which would reduce the budgetary deficit proportionately. It may therefore be said that, for Kalecki, the main characteristic of a full employment economy accompanied by a significant redistribution of income is the gradual replacement of the budgetary deficit policy by the system of income taxes described above.

It should be noted that Kalecki does not deny the possibility that a certain flexibility in wages and prices could have reduced frictional unemployment in the case of a dynamic economy and also prevented the tendency for wages and prices to rise continuously in a full employment economy. Objections to a flexible wage policy are concentrated mainly on the idea that such adjustments would, in the final analysis, prove ineffective and costly from the standpoint of society (Kalecki, 1946b). Indeed, a reduction in demand for the products of a certain industry (which under full employment conditions is always associated with an increase in demand for other products), would not ensure a reduction in prices but only, initially, a reduction in the output in the industry in question. The decline in production would cause a certain amount of unemployment, and if wages were flexible these too would decline, thus bringing about, but *only after a certain time*, a drop in prices. However, if demand for the products of that industry is relatively inelastic, the decline in wages must perforce be considerable so that the unemployment can be reabsorbed. Low wages would oblige some of the workers to seek employment in other sectors, so that wages would be restored to the previous level without altering the structure of production. In this context, the reduction of frictional unemployment would be achieved at the cost of a considerable loss for the workers in this specific industry.

It is a good thing, concludes Kalecki, that the express purpose of trade unions is to avoid this type of adjustment. The role of the unions in full employment conditions would, therefore, according to Kalecki, apart from the other factors already mentioned, be to prevent prices from increasing despite the increase in costs (assuming wage increases greater than productivity increases) and to have a word to say in the imposition of the income tax (Kalecki, 1944, 1946b). In his *Three ways to full employment* Kalecki reaches more or less the same conclusions that he drew in *The political aspects of full employment*, and which may be summarized as follows.

The proposed income tax system would, according to the author, encounter extremely fierce opposition on the part of entrepreneurs, both on

account of its distributive aspects as well as on account of the impression it gave of undermining the principle of private property. Price and wage level stability would therefore, in the final analysis, depend on the institutional nature of full employment conditions. In view of these difficulties of a political and institutional nature, Kalecki assumed that, in practice, whenever the economy remains for too long a period at a level approximating that of virtually full employment an alliance would form between entrepreneurs and the most “boom tired” classes aimed at inducing the Government to renounce its objective of ensuring full employment and thus deliberately creating unemployment, thereby imparting to the economy of the democratic capitalist countries a permanent “stop-go” rhythm, albeit in attenuated form.

(4) Kalecki’s observations and conclusions are fully applicable to the pre-war experiments upon which he has drawn in his articles to provide a number of admirable topics for reflection. For this reason, and so far as the post-war period is concerned, many of the limitations on State intervention described by Kalecki are no longer relevant, although we shall see how this development has not invalidated the main conclusions reached by the author.

Kalecki had the merit of having provided a clear-cut definition, as early as 1943, of the specific use of instruments of Keynesian economic policy during a period which, for us, is contemporary and which Professor Pasinetti has well described in the following terms: “The Keynesian management of total effective demand has by now become such a common Government policy as to be used sometimes not only for achieving full employment, but also for deliberately causing ‘Keynesian’ unemployment.”<sup>9</sup>

### 12.3 Some Implications of Kalecki’s Assumptions and Closing Remarks

In the previous section we saw the context in which, as well as the criteria on the basis of which, State intervention in the economy should take place. These can be summarized as follows:

- a. In Kalecki’s thinking, State intervention has two objectives, namely, support of mass consumer goods and investment in sectors that are traditionally within the State’s competence (schools, hospitals, roads, etc.) to be achieved mainly through deficit spending. Investment in the private sector in areas where capital formation is inadequate in relation to the full employment goal. This is achieved in part indirectly by the modification of the income tax;
- b. In full employment conditions, deficit spending should be gradually replaced by an income tax designed to reduce the consumption of the well-off classes;

- c. In full employment conditions it is reasonable to assume that wage increases will be greater than productivity increases, whose scope and effective achievement depend in the final analysis on the institutional structure of these full employment conditions.

A few words must be said about the various points mentioned above.

(1) Kalecki regards State investment as designed to guarantee output at the full employment level and to avoid the formation of inter-sectorial imbalances. The purpose of public and private investment is to create capital goods for the production of consumer items corresponding to requirements, and not to create jobs. Vice-versa, the purpose of public spending as such is the immediate creation of effective demand through support for mass consumer items, to be financed by the gradual replacement of the budgetary deficit by the income tax.

It is quite obvious that this presentation of the problem anticipates Haavelmo's theorem, according to which an expansionist policy with a balanced budget is possible once investment and the functional relationship between consumption and available income is known, which is precisely the case postulated by Kalecki (Haavelmo, 1945, Samuelson, 1948).

Moreover, the specific functions attributed to public and private investment reveal that Kalecki regarded aggregate demand as an indicator rather than as a magnitude offering a basis for possible practical action.<sup>10</sup> On the contrary, he consistently stresses the need to define specifically the sectors in which action should be taken and, above all, which social classes should have been favoured by the increase in aggregate demand brought about by public spending. In the paragraph (3) below we shall see that this approach is of real importance to the definition of the relationship between deficit spending and the inflationary process.

(2) Kalecki assumed wage increases greater than increases in productivity. We have already seen that this assumption is compatible with full employment, provided that there is a gradual reduction in consumption by capitalists. However, this process cannot be considered to be continuous so that, eventually, one must arrive at an incomes policy with wage increases that do not exceed productivity increases. In Kalecki's works this problem is present in the sense that *first* the objectives of income redistribution must be established and *then* (once this has been achieved) an incomes policy applied, including wage controls. For Kalecki this objective is defined by the limits to which it is feasible in practice to take the income tax designed to reduce the consumption of capitalists. The importance of Kalecki's introducing the assumption of wage increases greater than productivity increases consists in his having emphasized, as early as 1944, the possible relationship between full employment and wage inflation, and in

having highlighted the need for a radical redistribution of income in order to prevent such inflation.

(3) Kalecki postulates the replacement of the budgetary deficit by an income tax only when full employment has been achieved. From the reverse point of view, deficit spending is essential in order to achieve full employment because it immediately generates effective demand. The budgetary deficit by itself is not inflationary, since it creates the savings necessary for its financing. However, a special case, but one that is characteristic of our time, of inflation takes place when public spending is directed towards sectors that do not expand the supply of consumer goods and which are therefore unproductive (we may recall that, for Kalecki, the function of investment is to create capital goods for the production of consumer goods). In this assumption, increased employment and higher wages give rise to an inflationary potential owing to the absence of any increase in the supply of consumer goods or to a reduction in the rate at which the supply increases. Kalecki makes specific reference to the case of the United States economy in the postwar period (Kalecki, 1956, 1967b). His ideas on this subject were taken up and elaborated upon by Baran in his well-known work *The political economy of growth* and may offer a basis for a series of studies on the effects of public spending in the Western economies, because if is not only armaments which are unproductive; on the contrary, the relatively greater stability of employment in Europe in comparison with the United States is due to the increasing role of State spending and its effects on employment and specifically to its greater scope and different emphasis.

## Notes

1. I am grateful to Professor Sergio Steve and Professor Syios Labini for having followed this work and for their advice; I should also like to express thanks to Doctor Ruggero Amaduzzi.
2. KALECKI, 1937 b.
3. *Ibid.*
4. M. KALECKI: *Studi sulla teoria dei cicli economici: 1933–1939*, Milan, Il Saggiatore. 1972.
5. This analysis of the behaviour of capitalists as a class and as individuals is a characteristic feature of Kalecki's thinking. He was careful to observe that the behaviour of capitalists as a class can be inferred only *ex-post*, whereas the decision-making process concerns capitalists as individuals and no conclusion can possibly be drawn about their group behaviour. This approach is evident in his 1933 essay on the theory of the business cycle and was elaborated upon in his 1967 work on Rosa Luxemburg and Tugan Baranovsky, and constitutes, in our opinion, a convincing demonstration of the undogmatic view taken by Kalecki of contemporary economic theory and Marxist theory (Kalecki. 1933, 1967a).
6. KALECKI, 1937a.
7. *Idem.*



8. A similar attempt was made by Steindl who, using as his point of departure Kalecki's assumptions concerning increasing risk, elaborated a theory of the "income" of the large entrepreneur. According to Steindl, small firms are more at risk than large ones because they are obliged to invest a large proportion of their own, capital since they lack easy access to credit and must, at the same time, avoid being squeezed out of the market. This fact brings about a continuous destruction of capital (bankruptcies) of which the "large" firms take advantage by filling the gap through the use of their excess production capacity. This, according to 'Steindl, helps to' offset stagnation (Steindl, 1945).

It will be noted that Steindl's analysis gives rise to two rather questionable cases: if the (offsetting) process is continuous, no explanation is given of how the capital of the "small" firm is reconstituted, or how new small firms come to be established; if, on the other hand, the process is not continuous the inevitable conclusion must be drawn that all entrepreneurial capital will become concentrated in the "large" firms, that is to say without any margin, thus causing permanent stagnation. This generalization is arbitrary.

9. PASINETTI, 1974.

10. I am grateful to Professor Sergio Steve for drawing attention to this point.

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# 13

## Was Kalecki an “Imperfectionist”? Davidson on Kalecki

*Peter Kriesler*

*Davidson (2000), in making an important comparison of Keynes and Kalecki on employment and effective demand, is unfair in his representation of Kalecki's analysis. Davidson labels Kalecki an “imperfectionist,” with unemployment being the result of imperfect competition, and is critical of Kalecki's discussions of financial behavior, due to the limited role given to the interest rate. The paper distinguishes between Kalecki's general analysis of effective demand and his analysis specific to capitalist economies. His general analysis of effective demand is applicable to both competitive and imperfectly competitive situations. Unemployment, in the Kaleckian model, is not the result of imperfect competition, but rather results from insufficient effective demand. Imperfect competition can exacerbate the problem. Kalecki's monetary analysis stresses the importance of credit rationing, rather than the rate of interest, as well as assuming demand-determined money supply. It has provided the inspiration for much Post Keynesian analysis.*

*In other words, Kalecki's analysis suggests that a full employment outcome could be automatically maintained by sufficient competition in the product market. . . . Kalecki's theory of effective demand . . . places the ultimate cause of unemployment on the absence of competition in product markets. (Davidson, 2000, p. 5)*

Although there seems to be general agreement within the discipline that Keynes and Kalecki, at about the same time, independently discovered the principle of effective demand, little attention has been paid to the actual similarities and differences in their analysis (see, however, Sawyer, 1985, ch. 9; Kriesler, 1997). Davidson has performed an important service by outlining the major differences between Keynes and Kalecki on the causes of unemployment.

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However, in doing so, his representation of Kalecki's position is not entirely accurate, especially in his argument that the cause of unemployment, according to Kalecki, is imperfect competition. In addition, Davidson's criticism of Kalecki's monetary analysis overstates the case. Although Kalecki's analysis is underdeveloped, it contains, in embryonic form, the seeds of most subsequent Post Keynesian analysis (see, for example, Arestis, 1996, and Sawyer, 2001b). These two issues are discussed below.

### 13.1 Kalecki as "Imperfectionist"

Davidson criticizes Kalecki for being what he calls an "imperfectionist." By "imperfectionist" is meant the view that unemployment is not the natural outcome of a market economy, unless there is some form of market imperfection (such as imperfect competition), without which full employment would be the norm. This is an important criticism to reply to, as it is often made by critics of Kalecki. To understand why this is not a good description of Kalecki, it is necessary to distinguish between Kalecki's general analysis of effective demand and his specific analysis of capitalist economies. Sawyer (2001a) has clearly documented how Kalecki's initial formulation of the principle of effective demand was in the context of "free competition," which was only rejected after 1939 (see also Osiatynski, 1990, p. 523):

the assumption of "free competition" is suggestive of the idea that Kalecki did not view imperfect competition as *fundamental* to the explanation of unemployment and of the role of aggregate demand. (Sawyer, 2001a, p. 253, emphasis in original)<sup>1</sup>

In other words, it is clear that imperfect competition did not play any role in Kalecki's initial formulation of the principle of effective demand.<sup>2</sup>

Subsequently, Kalecki was extremely dismissive of both perfect competition (which assumes perfect knowledge and which Keynes also would have rejected) and free competition models as having any descriptive relevance for capitalist economies. He clearly believed that no actual capitalist economy ever approached the conditions of either:

Monopoly appears to be deeply rooted in the nature of the capitalist system: free competition, as an assumption, may be useful in the first stage of certain investigations, but as a description of the normal state of capitalist economy it is merely a myth. (Kalecki, 1939a, p. 252)

"Perfect competition" . . . is a most unrealistic assumption not only for the present phase of capitalism but even for the so called competitive capitalist economy of past centuries: surely this competition was always in general very imperfect. Perfect competition when its actual status of

a handy model is forgotten becomes a dangerous myth. (Kalecki, 1971, p. 98)

As a result, the starting point for all his analysis of capitalist economies was the position that competition was imperfect.<sup>3</sup> Nevertheless, Kalecki, even in these later works, did not believe that imperfect competition was the *cause* of unemployment, although he believed that it would accentuate it. Rather, unemployment is the result of inadequate effective demand, which can just as readily occur in perfectly competitive models. Kalecki's contribution, like Keynes's, was to show that there was no automatic mechanism that could restore full employment in capitalist economies. Both explicitly denied the validity of Say's Law.<sup>4</sup>

Kalecki argued that it is unlikely that capitalist economies will generate enough effective demand to achieve full employment, and, even if they do so at any point in time, there are important long-run forces that impose on the economy a tendency toward unemployment. More important, there is no mechanism to push the economy to full employment. The orthodox solution of a fall in real wages will not solve the problem. This is independent of imperfect competition. In fact, Kalecki makes it quite clear that unemployment is just as likely in a perfectly competitive model. For him, the important assumption in neoclassical theory, which generates full employment, is not perfect competition, but the quantity theory of money. Imperfect competition exacerbates the problem, rather than causes it.

With the quantity theory, changes in nominal aggregate expenditure/demand (PY) are determined by changes in the exogenously given money supply and in the institutionally determined velocity of circulation (MV). In this case, a reduction of nominal wages, and therefore of marginal costs, leads to a reduction of the price level. With nominal aggregate income (PY) given by the money supply, the fall in the price level must lead to an increase in the level of real activity (Y) and, therefore, of employment. This, according to Kalecki, is the mechanism orthodox economic theory relies on to show how full employment is restored as a result of a reduction in wages.

However, if we reject the quantity theory, and argue that, in a closed economy, the level of aggregate demand is determined by total (capitalist + workers) expenditure, then the story changes quite dramatically. A reduction in wages, because it has no immediate impact on capitalist income, will not initially influence capitalist expenditures. The reduction in wages causes a proportional reduction in demand for wage goods, whose prices, therefore, also fall in the same proportion. As a result,<sup>5</sup>

The most likely effect of wage reduction in a system of perfect competition is a decline in the general level of prices with no change in production and employment. (Kalecki, 1939b, p. 30)

It is clear from this, that, contrary to Davidson's claim, Kalecki is not an "imperfectionist," as he, like Keynes, shows that there is no mechanism, even in a perfectly competitive economy, which pushes the economy to the level of full employment. For Kalecki, the problem of full employment is amplified by the actual imperfectly competitive nature of capitalist economies. This is due to the fact that, in these economies, prices are unlikely to fall by as much as wages, causing real wages to fall. This reduction in real wages will reduce demand for wage goods and, therefore, will reduce total employment. However, it is important to stress that imperfect competition is not the cause of unemployment, it merely acts to accentuate it.

Davidson also attempts to impute a sort of Say's Law to Kalecki, with savings determining investment, when he argues that

whatever proportion of earned profits entrepreneurs do not spend on consumption is saved, but these savings are necessarily spent on buying newly produced capital goods. (Davidson, 2000, p. 8)

However, this mistakes the causal link between capitalists' savings and investment. For Kalecki, savings do not automatically translate into an act of investment, as is implied in the above statement. Rather, since investment and capitalist consumption themselves determine capitalist income (profits), it is investment that determines saving, and not vice versa, exactly as it does for Keynes (see, for example, Kalecki, 1939a, pp. 274–275).

### 13.2 Kalecki's Monetary Analysis

Davidson is generally critical of Kalecki's discussions of financial behavior, particularly for not giving the interest rate an important role in the determination of aggregate investment. Kalecki clearly argued that the channel of monetary influence was not through the price of credit (the rate of interest), which he believed did not generally influence investment, but rather through its quantity, which he believed did (Kriesler, 1997). Kalecki believed that only the long-term rate of interest, which was relatively stable, played any role in influencing investment decisions. Rather, he argued that the financial sector and banks played a significant role in determining investment through their influence over the supply of credit, a position Keynes subsequently came to when discussing the "finance motive" (Kriesler, 1997, pp. 308–309). Kalecki's view of the interest inelasticity of investment is reinforced by empirical and other evidence,<sup>6</sup> which show that the inverse relation between the rate of interest and the level of investment does not hold up to scrutiny.

In addition, whereas in the *General Theory*, Keynes's use of money stressed the exogenous nature of the money supply determined by the central bank, Kalecki stressed its endogenous nature, assuming that "the supply of money

by the banks is elastic" (Kalecki, 1971, pp. 99f; Kriesler, 1997),<sup>7</sup> a position that is more in accord with Post Keynesian analysis than that of Keynes.<sup>8</sup>

Davidson's (2000, p. 23) conclusion that, for Kalecki, central banks "can [not] play a significant role in stabilizing the real economy" is only true if it is accepted, first, that central banks can exert such control, and, second, that the only channel of monetary influence of central banks is the rate of interest, rather than the availability of credit.<sup>9</sup> With respect to the first issue, the ability of central banks to influence the economy is an area of controversy. The transmission channels have become increasingly unreliable, first in terms of the lag between when the monetary authority implements changes in interest rates and when these, in turn, impact on the economy; and, second, in terms of the size of that impact. In the famous analogy, using monetary policy in a recession is comparable to pushing on string, while it may be able to pull an economy out of a boom, it is unlikely to push it out of a recession. Not only is monetary policy associated with "long and variable lags," but there is also significant uncertainty as to the size, if any, of its impact. After all, recent experience in the United States and Japan has shown the limitations of the ability of interest rates to push an economy out of recession (see Nevile and Kriesler, 2001).

### 13.3 Conclusion

In comparing Keynes's and Kalecki's versions of the analysis of employment, it is important to remember that they both developed the fundamental principles associated with the theory of effective demand, namely that

1. the main determinant of employment is the level of demand: reductions in money wages will not restore full employment;
2. investment determined saving, rather than vice versa;
3. the dichotomy between monetary and real sectors is false; and
4. therefore, there is no automatic mechanism in a capitalist economy that can guarantee full employment.

In making his comparison of Kalecki and Keynes, Davidson points to the advantages in Keynes's analysis as a result of his richer analysis of financial behavior, and of uncertainty. Although he understates the significance of Kalecki's monetary contributions (see, for example, Sawyer, 1985, 2001a, 2001b; Arestis, 1996; Dymski, 1996), he is correct in noting Kalecki's general neglect of uncertainty.<sup>10</sup> He does not, however, discuss any areas in which contributions from Kalecki improve on those of Keynes. In Kriesler (1997), while accepting that the issues raised by Davidson represented Keynes's unique contributions to the theory of employment, I also point to some of the distinct features of Kalecki's version, resulting, at least partially, from his Marxist starting point with the reproduction schemas, so that production,

as well as exchange and distribution, plays a central role in his explanation. These contributions include:

1. well-developed microfoundations,
2. endogenous money,
3. a central role for distribution, and
4. the importance of imperfect competition.

In other words, when we compare Kalecki's and Keynes's versions of the theory of effective demand and employment, we find that, although they share many common features, each makes distinct and important contributions. As a result, the two theoretical structures should be seen as complementary rather than competitive.

## Notes

1. Kalecki, in 1934, admits this assumption in a reply to critics of his work, "the charges of my critics . . . boil down mainly to accusing me of assuming free competition. I admit committing this sin, which I share with the majority of economists who deal with the theory of money" (Osiatynski, 1990, p. 493).
2. In Kalecki's review of the *General Theory*, he shows that his results are independent of whether free or imperfect competition is assumed (Kalecki, 1936).
3. It is important to stress that Kalecki is concerned about capitalist economies, so the theoretical case where profits equal zero is not relevant.
4. Kalecki made it clear that Say's Law was not valid even under the assumptions of perfect competition. See, for example, Kalecki (1971, pp. 98–99).
5. See also Kalecki (1939a, pp. 274–277). Kalecki makes the same point in his posthumously published paper, "Class Struggle and Distribution of National Income" (Kalecki, 1971), showing that, even with perfect competition, a reduction in wages will not lead to increased employment.
6. For the empirical evidence, see Edey and Britten-Jones (1990), Eisner (1991, 1997), and Bernstein and Heilbroner (1991). Theoretically, this view was shown to rest on unsound theoretical foundations in the capital controversies (see Harcourt, 1972).
7. Cf. Dow (1997).
8. Arestis argues that the Post Keynesian analysis of money and credit "is actually based on Kalecki" (1996, p. 21). See also Sawyer (2001b).
9. Eisner argues that a proper understanding of the *General Theory's* arguments "would preclude a dominant role for the monetary authority" (1997, p. 190).
10. Although Kalecki did make an important contribution in this area in his discussion of the "principle of increasing risk."

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# 14

## Answers for Steedman

*Peter Kriesler*

Essentially Steedman is endeavouring to incorporate Kaleckian analysis into a Sraffian framework and then complains that the fit is less than perfect. For Sraffians the central problem is to analyse the determination of intersectoral prices, taking output as given. Classical dynamics cannot be readily incorporated into such a framework. Conversely, for Kaleckians the fundamental problem is to understand the 'laws of motion' of a capitalist economy. Here the analysis of price is an important stepping stone, but it must be evaluated in terms of the purpose it serves within the whole theoretical construct. Steedman's examination of Kaleckian pricing theory ignores this, and is therefore ahistorical. This incompatibility between the two approaches lies at the heart of my concerns with Steedman's programme.

Within economics there are many different schools of thought, and such divisions also exist within post-Keynesian economics. These divergent 'schools' use different frameworks to examine different questions. The essence of Steedman's paper is an attempt to contort one type of analysis into the framework of another. In other words, what he does is to incorporate Kaleckian analysis into a Sraffian framework, and then complain the fit is less than perfect.<sup>1</sup> Although there are problems within the Kaleckian framework which need to be addressed, they are not the ones identified by Steedman. Many of the issues he raises are simply nonissues within the Kaleckian framework, although they are clearly relevant problems within a Sraffian one.

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If the Sraffian approach, which Steedman uses, is compared with the Kaleckian approach of which he is critical, it can be seen that they use very different frameworks to consider very different questions. For Sraffian analysis, the central problem is to analyse the determination of intersectoral prices, taking output as given. Price theory is the 'core' of the analysis, and is perceived as being important in its own right. Nevertheless the classical dynamic concerns with accumulation and growth cannot be readily incorporated into the analysis, and pose insurmountable problems for the Sraffian analysis of price.<sup>2</sup> For Kaleckians, on the other hand, the fundamental problem for the analysis of capitalist economies is the understanding of their 'laws of motion', in other words, the analysis of growth, accumulation and the cycle. The analysis of price is an important stepping stone to the development of that analysis, but it must be evaluated in terms of the purpose it serves within the whole theoretical construct. Steedman's examination of Kaleckian pricing theory studies ignores this, and so is an ahistorical view. It ignores the 'horses for courses' outlook which Harcourt locates at the centre of post-Keynesian method. According to this view, the appropriateness of a theoretical framework cannot be judged independently of the problems which it is addressing. Steedman's approach utilizes a general equilibrium input/output analysis of natural values to provide a general theory of prices. This is not the point of Kaleckian analysis. Rather, the pricing decisions of individual firms are analysed as a step in deriving conclusions about the share of wages in national income. Steedman asks 'Why ... is the wage share so often the central focus of attention in Kaleckian theory?', and hints at the response. 'for aggregate effective demand reasons?' This is obviously correct. Kalecki was mainly interested in changes in effective demand over the cycle, and within his analysis the microfactors determining manual labour's share of national income play a key role.<sup>3</sup> The fact that Steedman feels the need to ask the question indicates that he is not evaluating Kaleckian theory in terms of the questions which it is trying to answer. The Sraffa framework cannot incorporate changes in output or technology into its analysis of price. Yet, given Kalecki's concern with growth and employment, these are the fundamental problems which the Kaleckian framework was designed to handle. Kalecki was attempting to understand the historical development of capitalism, where is the equivalent project for Sraffians?

In responding to Steedman's questions, we can immediately reject his claims that Kaleckians ignore intermediate goods, intersectoral considerations and that the analysis relies on vertical integration.

In Kaleckian analysis, prices of manufactured goods are mainly determined as a mark-up on costs. After noting that 'costs are ... price determined' Steedman uses this to criticize Kaleckian analysis on the basis of its neglect of intermediate goods. According to Steedman, 'Kaleckians follow Kalecki's bad example ... no reference being made to the wide range and huge volume of manufactured intermediate commodities'. However, this is simply

not correct. While it is true, as Steedman notes, that Kalecki distinguished between price determination of 'raw materials' and 'finished goods', a careful reading shows that by 'finished goods' Kalecki means manufactured goods rather than final products; as he carefully distinguishes between 'investment goods' and 'consumption goods' as different categories of 'finished goods', and considers changes in their relative prices.<sup>4</sup> In other words, intermediate goods are regarded as being of equal importance to final goods in the analysis. As for Steedman's related claim that Kalecki ignores intersectoral relations, and the fact that the costs of one firm are the prices of another, consider the following:

The formation of prices of finished goods according to the above theory is the result of price formation at each stage of production ... In the first stage of production, prime costs consist of wages and the cost of primary products. In the next stage the prices are formed on the basis of the prices of the previous stage and the wage of the next stage, and so on. (Kalecki. 1971: 58–59).

Not only has Kalecki explicitly incorporated Steedman's stress on the importance of an input/output structure, and of the role of intermediate goods, but he also explicitly considers the differential impact on their prices during the course of the cycle (pp. 59–61). This is hardly the 'bad example' Steedman asserts. Further, recalling that for Kalecki what is important is the determination of the share of manual labour, we can see how his analysis is well suited for that purpose. If we look at the final selling price of any commodity, it can be decomposed into the raw material costs of each stage of production, the wage bill in each stage of production, and the mark-up in each stage. In other words, the analysis allows the final price of output to be broken down into its components. So, the price theory is important as it allows the separation of the value of the final output into its distributive shares.

The importance of this is related to Kalecki's use of the partial equilibrium method. From the quote above, it is obvious that Kalecki took account of the fact that each firm's price was determined by its costs, which were, in turn, determined by the pricing decisions of other firms. However, for his purposes a general equilibrium theory of price was not appropriate. It is standard in partial equilibrium analysis, as well as in industry economics, to take costs from outside an industry as exogenous; unless that industry is so large a user of an input that it can influence price. The distinction between partial and general equilibrium analysis is important in understanding the methodological problems with Steedman's paper. Any economy is an extremely complex set of phenomena with an extremely large number of important inter-relations. This complexity is increased by an order of magnitude when open economy effects are acknowledged. Now, there are two basic ways in

which economists attempt to deal with such complexity. General equilibrium analysis attempts to capture all the essential relationships impinging on any problem. However, the precision which the analysis captures is at the expense of being able to use it meaningfully for understanding any particular society, so that the greater level of generality demands a higher level of abstraction. When all the major relations are analysed simultaneously, it is difficult to say anything meaningful about causality. Partial equilibrium is an attempt to allow causal inferences to be made by isolating a section of the economy and focusing on that, assuming other relations remain unaffected. Clearly this method will never be capable of generating precise answers to general problems. Rather, it is an attempt to approximate, but by doing so to be able to draw causal inferences and hence address policy problems. As has been noted elsewhere: 'it is better to be approximately right than to be precisely wrong!'

Before continuing, it is important to note that Sraffa's 1926 criticism is not applicable to Kalecki's analysis, despite the fact that he uses a partial equilibrium framework. Sraffa (1926) showed that the assumptions that were required to generate the 'U'-shaped cost curves of traditional theory contravened either the assumptions of perfect competition or the assumptions of partial equilibrium, concluding that only a horizontal average variable cost curve was compatible with both sets of assumptions. This criticism is not applicable to Kalecki's use of partial equilibrium method as he assumes imperfect competition, and uses horizontal average variable cost curves (up to the level of full capacity utilization).<sup>5</sup>

It must be remembered that Kalecki was not so much interested in the formal properties of models as he was in understanding the world. This tradition has been continued by Kaleckians, who are mainly interested in pragmatic questions and applied economic work. This contrasts with Sraffa's thought experiment and the exercises in pure logic of the Sraffians. One may ask where is there any significant applied work by these economists? Steedman should realize that one of the costs of attempting to understand actual economies is the impossibility of complete rigour.

At this stage, it will be useful to look at some of Steedman's specific criticisms of the Kaleckian approach. Steedman is critical of the fact that Kaleckians only consider the forces determining the mark-up within the industry for their analysis of prices. While it is obvious to say that if one firm increases its mark-up, then, *ceteris paribus* its price will rise; it is just as obvious that if its costs are, at the same time, falling, then one cannot say, without further information, what the direction of its price change will be. Why Steedman should regard this as a criticism of Kaleckians is not obvious, except in terms of his general (theoretical) equilibrium critique of a partial (applied) equilibrium framework.

Kaleckians make use of the concept of 'average mark-up' in which mark-ups are weighted by output. Steedman is critical of this, calling this 'a most

peculiar average . . . because the “weights” depend on the quantities averaged’. However, this is standard procedure in any weighting process. There are many fields of economics in which the concept of a weighted average is applicable. Real GDP, average prices and inflation indexes are all examples where prices are weighted by outputs. Of course, the ‘weights’ – outputs – will depend on prices, but, again one may ask why this is regarded as being problematic? Using such weights is not problematic *per se*, as it depends on what they are being used for. Elsewhere I have criticized Kalecki’s pricing model for using such a weighted average. This was due to the fact that the pricing equation for individual firms included the industry average price, which itself included the price of the firm in question. Here the problem was that instability in a firm’s price could be caused simply by changes in its own price.<sup>6</sup> However, Steedman criticizes the use of ‘average mark-up’ because the weights (outputs) depend on individual mark-ups. Criticism must be aimed at the specific use of that measure, rather than at the measure in abstract. The ‘average mark-up’ is not used as an explanatory variable for Kaleckian pricing theory. Rather, it is used in a later stage of the analysis as a determinant of the distributive share of manual labour, and so the problem raised by Steedman is not relevant. The choice of ‘weights’ must be conditional on the problems being examined. If the analysis is attempting to explain distribution at a point of time, then current outputs are the correct weights. If, on the other hand, one is attempting to disentangle different causes of changes in distribution, then it is standard practice to use different weights. If, for example, the analysis is attempting to differentiate changes in aggregate distribution caused by changes in industrial composition from other causes, then various weights, including base year output, can be used.<sup>7</sup>

When Steedman looks at the analysis of the share of wages, he concludes that there may be problems with the aggregation to the industry level, as considerations external to the industry are involved. Again it is important to recall that this aggregation is merely a stepping stone to aggregation for the economy as a whole, so that these considerations will come out in the wash. The problems Steedman identifies have been discussed in the literature, and acknowledged by Kalecki.<sup>8</sup> As a result Kalecki modified his conclusions so that the share of wages in national income is not only determined by the ratio of the cost of raw materials to wage costs and the average mark-up but also by the composition of output. The essence of Steedman’s complaint is that the analysis effectively ignores this last variable. While it may be true that compositional effects have not been satisfactorily incorporated into the analysis as yet, this is different from arguing that they have been ignored.

Again, contrary to Steedman’s claim, vertical integration is not an essential part of Kaleckian analysis. In fact, Kalecki has argued that the reverse is the case:

In the above argument by ‘enterprise’ was really meant not the firm but a unit producing marketable goods, e.g. spinning and weaving mill which

belong to the same firm must be considered separate 'enterprises'. Indeed such a weaving mill in its pricing would take account [of] the yarn from its 'own' spinning mill at the market price, and consequently the formation of prices is here much as it would be if the two factories belonged to distinctive firms.

Now it is important to stress that with this definition of an 'enterprise' the turnover is *not* dependent on the degree of integration of industry so long as markets for intermediate production are in existence (Kalecki, 1939: 22).

In this excerpt, Kalecki effectively excludes vertical integration from his analysis, arguing that, even in the case of internal transactions, market price must be imputed. This lends weight to the argument that the use of vertical integration is merely as a simplifying assumption, as it is specifically excluded from the core of the analysis. Further, the quotation also reinforces the importance of intermediate goods within Kalecki's framework.

When examining the implications of fixed capital, Steedman is critical of the appropriateness of Kaleckian analysis 'to the maintenance of long-period positions'. Joseph Halevi and I have considered this argument in a previous paper in this journal, where it was concluded that: 'any attempt to impose either a uniform rate of profits, or long-period analysis onto Kalecki must be rejected; as must any attempt to impose long-run (or natural) prices' (Halevi and Kriesler, 1991: 85).

Steedman also takes Kaleckians to task for ignoring the issue of joint production. However, for Kaleckian analysis, this is a red herring for a number of reasons. Firstly, the manner in which it is currently modelled makes joint production mainly a problem for value theory, it is not useful for questions of accumulation and growth. Further, while it is true that Kaleckians have not analysed joint production, this is because it is not seen as being empirically important. Within the Sraffa framework, it is of great importance as it incorporates the role of capital goods within the pricing process, and allows price to be imputed to dated capital goods. This is not relevant for Kalecki's analysis as depreciation does not directly enter into the pricing decision. As Sraffa notes,<sup>10</sup> it is not of great importance otherwise. This is reinforced by looking at Steedman's own work (1990) on its empirical application. In any case, it would not be very difficult to include it into the analysis. In any production process where there is a multiple output, each would generate a different mark-up depending on the market in which it is sold. The difficult question would be the appropriate division of 'variable' costs between the outputs, and here it must be assumed that businessmen rely on norms based on rules of thumb.<sup>11</sup>

Let me conclude by noting, again, the inappropriateness of evaluating one theoretical framework in terms of another. The Sraffa framework is useful as a thought experiment analysing prices, very precisely, as potential centres of

gravitation, but cannot really say anything interesting about the determination of output, employment and growth. Within the Kaleckian framework, prices play a very different role. It is not mathematical precision which is important as relevance in terms of potential concrete application for the analysis of output, employment and growth. Kalecki's particular view of contemporary capitalism saw the manufacturing sectors as being dominated by oligopolistic influences which accentuated problems with effective demand. It was this vision which he attempted to incorporate into his analysis, rather than any purely formal model.

## Notes

I would like to thank Craig Freedman, John Nevile and Trevor Stegman of the University of NSW, Joseph Halevi of the University of Sydney and Teresa Bosky for their helpful comments.

1. There are clear parallels between Steedman's project and that of Hahn. Hahn (1982) attempted to show that neo-Ricardian or Sraffian analysis could be incorporated into an intertemporal neoclassical general equilibrium model, and that the resulting theory was a trivial case of the GE model.
2. See Halevi and Kriesler (1991).
3. See Kriesler (1987: 94–95).
4. See, for example Kalecki (1971: 58–60).
5. See Sylos-Labini (1985:62–63).
6. See Kriesler (1987: 66–67).
7. See, for example, Dixon (1979) and Stegman (1980).
8. See Kalecki (1971: 62–63).
9. See also Kriesler (1987: 115–116n).
10. Sraffa (1960: 63).
11. This approach is approved of in Schefold (1985: 22–23).

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# 15

## Reply to Steedman

*Peter Kriesler*

In his reply to my paper Steedman accuses me of evading the main issues. It is a great pity that Steedman takes this position instead of attempting to understand my comments. In this short note I would like to clarify my original argument. Basically, I made two types of comments on Steedman's original paper. The first was a methodological query, questioning the validity of appraising and/or asking questions of one theoretical framework in terms of the approach utilized by another. For all his claims that there is nothing intrinsically Sraffian in the framework he was using, to assert, as he does, that his argument is *a*theoretical is strange, to say the least. If he is arguing that there is no theory underlying his use of input–output analysis then what is the purpose of discussing 'the maintenance of a long-period position' (Steedman, 1992:140), or the 'Sraffa-basic commodity' (p. 130). In any case, it is clear that both Sawyer and Mainwaring have interpreted Steedman as arguing from a Sraffian framework. Steedman takes both Sawyer and myself to task<sup>1</sup> for describing his analysis as being set within 'a general equilibrium framework'. Although Steedman's objection to this semantic point is valid – 'mutual determination' would perhaps have been a more neutral and more appropriate description – we were both following the precedent established by Gram and Walsh in their well-known work *Classical and neoclassical theories of general equilibrium*. In any case, Steedman totally ignores the methodological issues (also raised by Sawyer) which are raised in my paper.<sup>2</sup> All I asked was that Steedman evaluate Kaleckian theory in terms of both what it is trying to do and the questions it is trying to ask, rather than imposing his own agenda and then complaining that Kaleckian analysis does not fit it.

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The second type of comment were my specific replies to his questions. Steedman ignores almost all of these. They include my comments on joint products;<sup>3</sup> my reply to his mistaken criticism of Kalecki's averaging procedure;<sup>4</sup> my reply to his query about why Kaleckians are so concerned with the wage share; the response to his claim that Kaleckians ignore intermediate goods and intersectoral considerations, and my identifying both his mistaken understanding of Kalecki's use of the term 'finished' goods, and his incorrect claims that Kaleckians ignore aggregation problems. Steedman criticizes Kaleckians for relying on the concept of vertical integration,<sup>5</sup> and, when I point out that this concept was anathema to Kalecki, he denies that he made the charge.

In other words, contrary to his claim that my response to his paper avoided the issues he raised, it is Steedman who has chosen to ignore the issues posed in my response to his challenge.

## Notes

I am grateful to Bruce McFarlane of Macquarie University and Geoff Harcourt of Cambridge University for their helpful comments.

1. The reader may be interested in noting the very different tones Steedman uses to describe Sawyer's and my use of the term!
2. As a result of ignoring my comments on the methodological problems of his project, Steedman misunderstands the reason for my pointing to the parallels of his project and that of Hahn. Both were criticizing one type of theoretical framework which viewed the economy in a particular way and asked particular questions in terms of a very different approach.
3. In reply to his questions 12, 13 and 14.
4. In reply to his question 5.
5. See questions 10, 11 and 15.

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# 16

## On the Limitations of Fiscal Policy: A Radical Kaleckian View

*Joseph Halevi and Peter Kriesler*

### 16.1 The General Principles: Investment and Profits

Having co-discovered the principle of effective demand, Kalecki did not follow the Keynesian economists in calling for government macro-economic policy, particularly fiscal policy, as a panacea to the problem of unemployment. He was particularly wary of monetary policy, believing that its main role was to keep investment at its trend level.<sup>1</sup> His views on the limitations of fiscal policy as a means of ensuring full employment were much more complex. As well as the economic limitations, there are fundamental political ones which ensure that, unless the fundamental institutions of capitalism are changed, full employment cannot be maintained. In other words, Kalecki drew an important distinction between achieving full employment, which was possible with the aid of government fiscal policy increasing effective demand, and the maintenance of that employment.

Unlike Keynes, Kalecki started right away from the mechanism of the determination of the level of profits. Thus, as early as 1933, Kalecki worked out a profit multiplier determined by the reciprocal of capitalists' propensity to save, whereas the multiplicand was given by the sum of the constant component of capitalists' consumption and gross investment (Kalecki, 1933). Thus the level of profits  $P$  is given by:

$$P = (A + B)/(1 - \lambda) \quad (16.1)$$

where  $A$  is gross accumulation,  $B$  is the constant part of capitalists' consumption and  $\lambda$  is the propensity to consume out of profits. Now, if the

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distribution of income is given for oligopolistic reasons, the level of national income  $Y$  will vary in the wake of variations in  $A$ :

$$Y = (A + B)/(1 - \lambda)q, \quad (16.2)$$

where  $q = (P/Y)$ .

Following Kalecki (1962), equation (16.2) can be rewritten in a more compact form:

$$Y = hI + N, \quad (16.3)$$

where  $h$  is one over the denominator of (16.2),  $I$  is investment and  $N$  a constant.

The role of government expenditure and of exports in promoting profits can be seen by grafting on to a standard macroeconomic open economy accounting relation the Kaleckian assumption of a given share of profits in national income, determined by oligopolistic factors. Hence, if  $C$  and  $I$  stand for aggregate consumption and investment,  $G$  for total government outlays,  $tY$  for total tax revenue,  $X$  for exports and  $M$  for imports, national income will be equal to the sum of investment, consumption, government expenditure and exports less the sum of tax revenue and imports. Assume also that imports are a function of both consumption and investment. We have:

$$M = nC + mL, \quad (16.4)$$

where  $n$  and  $m$  are the propensities to import consumption and investment goods, respectively. Having assumed a given distribution of income, it is possible to define  $c$  the average propensity to consume. We then have:

$$C = c(1 - t) Y. \quad (16.5)$$

Substituting the expressions for  $M$  and  $C$  in the national income identity we obtain:

$$Y = c(1 - t)Y + I + G + X - tY - nc(1 - t) Y - mL. \quad (16.6)$$

Collecting terms, substituting  $P/q$  for  $Y$  and solving for the level of profits  $P$ , we obtain:

$$P = q[G + X + I(1 - m)]/[1 - c(1 - t)(1 - n) + t]. \quad (16.7)$$

According to equation (16.7), given the share,  $q$ , of profits in national income, and therefore of the average rate of taxation,  $t$ , and of the average

propensity to consume,  $c$ , any expansion in government expenditure and exports will lead to a rise in the level of profits.<sup>2</sup> From the point of view of a single economy, the structure of the input–output system matters as it determines the expansionary impact of an increase in investment. Indeed, the higher the import propensity of investment goods, a fact that depends on the objective structure of production, the lower will be the profit multiplier effect of investment. For the world economy, however, the export multiplier disappears, as does the propensity to import capital goods. Public expenditure,  $G$ , however, does not vanish so that it can be concluded that, at the world level, the only multiplier effect is that coming from government expenditure and from investment (Kaldor, 1989b).

Thus, given the level of government expenditure, profits and income will increase or decrease only following changes in the level of investment. Furthermore, current gross investment appears as exogenously determined because it is the outcome of decisions made in the past. It follows, therefore, that the government's deficit cannot crowd out private investment. Instead, by entering into the multiplicand, deficits will expand the level of profits. At this stage, the point to be retained is that profits are generated by investment expenditure and by any other component entering into the multiplicand, such as deficits and net exports. Reductions in wages will only reduce employment and change the sectoral composition of profits, but will have no impact on aggregate profits.

Kalecki viewed the profit multiplier as the essence of modern capitalism. Changes in the level of production and employment are not tied to changes in productive capacity, but rather to changes in the level of investment which, by having an impact on profits, affect the level of output for any given distribution of income. In other words, an increase in production and employment brought about by additional capacity through a constant level of investment is not considered by Kalecki as belonging to the realm of capitalism (Kalecki, 1962).

When investment reaches its top level during the boom, the following situation arises. Profits and national income, whose changes are directly related to those of investment, cease to grow as well, but capital equipment continues to expand because net investment is positive. The increase in productive capacity is thus not matched by the rise in effective demand. As a result, investment declines, and this causes in turn a fall in profits and national income.

To put this causation of the downswing into proper perspective it is useful to inquire what would have happened in a similar situation in a socialist economy. The equation (5) [that is (16.3) in this chapter], would obviously not be valid: changes in national income would not be tied to those of investment but would follow the changes in productive capacity. (Ibid: 139–40)

This last qualification is important, as it will bear directly upon the question of whether or not full employment can be maintained over time.

## 16.2 Attaining Full Employment

In Kalecki's framework, the contradictory nature of capitalist dynamics does not stem from the classical inverse relation between the wage rate and the rate of profits. In fact, for Kalecki, the existence of excess capacity destroys any direct relation between the two. Changes in the wage rate, under contemporary capitalism, do not affect aggregate profits, but merely the level of employment and output, in the opposite manner to that proposed by neoclassical theory. The reason why changes in wages will not influence total profits can be best understood with Marx's schemes of reproduction (Kalecki, 1971b; Bhaduri, 1998). Let us focus on the wage goods sector, by assuming that capitalists' consumption and investment are given in any short period. The level of monetary demand for wage goods is equal to the money wage,  $w$ , multiplied by the total level of employment,  $L$ . This sum has to be equal to the productivity of labour in the wage goods sector  $\pi$ , multiplied by the sector's level of employment,  $L_w$ , multiplied in turn by the unit money price of wage goods,  $p_w$ . Thus:

$$p_w \pi L_w = wL. \quad (16.8)$$

The level of monetary profits in the consumption goods sector is given by the difference between the value of the sector's output and the sector's wage bill. This value has to be equal to the value of the wage bill in the rest of the economy,  $w(L - L_w)$ :

$$P_w = p_w \pi L_w - wL_w = w(L - L_w). \quad (16.9)$$

It is clear that  $(p_w \pi - w)$  is the monetary value of the surplus (profits) produced by each worker employed in the wage goods sector. If we denote this monetary surplus by  $s$ , we have:

$$sL_w = w(L - L_w). \quad (16.10)$$

From equation (16.10), we can see that a rise in the money wage rate,  $w$ , will increase the level of monetary profits in the consumption goods sector by causing a decline of an equal amount in the capital goods sector. As a consequence, the effect of an increase in the money wage is a change in the sectoral composition of profits. To check the possible impact in real terms, assume that the unit price of wage goods,  $p_w$ , remains fixed. If, in the short period, the level of investment is assumed to be given, the level of employment in the capital goods sector will also be given. As a consequence of the multiplier effect induced by increased wage earners' consumption, the ratio

of the level of employment in the investment goods sector to the level of employment in the wage goods sector  $[(L - L_w)/L_w]$  will fall. This process will lead also to a fall in the surplus per worker, as can be gathered by looking at equation (16.11), where  $z$  represents the employment ratio:

$$s = wz. \quad (16.11)$$

It follows that profits will rise in the wage goods sector at the exact expense of those in the capital goods sector without loss in overall profits. Only the share of profits will decline. Yet, if the productivity of labour in the production of wage goods rises concomitantly with the activation of the wage goods sector multiplier, the share of profits will not fall, or will experience a softer decline. Variations in the share of profits are crucially important for the determination of investment only if we assume, as the classics including Marx did, that the system always operates at full capacity. This is tantamount to saying that savings – unconsumed corn – determine investment. In a modern multi-sector capitalist economy the problem affecting capital accumulation lies elsewhere, in the realm of effective demand.

The underlying contradiction of capitalism is mostly due to the dual function of investment, which is both a form of expenditure and an addition to the existing stock of capital:

We see that the question, ‘what causes periodic crises?’ could be answered briefly: the fact that the investment is not only produced but also producing. Investment considered as capitalist spending is the source of prosperity, and every increase of it improves business and stimulates a further rise of spending for investment. But, at the same time, investment is an addition to the capital equipment, and right from birth it competes with the older generation of this equipment. The tragedy of investment is that it calls forth the crisis because it is useful. I do not wonder that many people consider this theory paradoxical. But it is not the theory which is paradoxical but its subject—the capitalist economy. (Kalecki, 1936–7: 554)

The crisis is generated precisely by the usefulness of investment as expenditure and, therefore, as a source of profits. When investment materializes into new equipment, it competes against the old capital stock. Outside the extreme case of balanced growth, such a situation is likely to generate unused capacity with negative repercussions on investment decisions and on future profits. Thus the process of attaining full employment requires measures aimed at stimulating overall investment.

### 16.3 The Possibility of Full Employment

The recent rekindling of academic interest in Kalecki’s economics has, by and large, sidestepped his works on deficit financing undertaken in Oxford



during the Second World War, and on the economics of full employment. The latter is condensed in two fundamental essays titled 'Three Ways to Full Employment' (1944) and 'Full Employment by Stimulating Private Investment?' (1945).

Full employment can be attained through the method of deficit financing since the deficit always creates the required amount of savings via the multiplier effect induced by it. The rate of interest need not rise as long as the central bank is willing to supply private banks with the required amount of money. Indeed, for Kalecki, the method of financing the deficit for achieving full employment can be the same as that followed by Britain during the Second World War, where the public could buy long-term fixed-interest rate bonds and the remainder of the deficit was covered by floating debt. As long as demand does not outstrip available productive capacity, the method of deficit financing with a given rate of interest will not involve any major inflationary pressure.

The possibility of moving towards full employment depends structurally both on the initial degree of capacity utilization and on the level of the stock of capital relative to employable population. If the size of the capital stock is low with respect to the size of the labour force, then, before all the available labour can be fully employed, expansion will hit a capacity constraint. In this case, full employment can only be reached by means of capital accumulation. In this context, deficit financing cannot generate the required level of effective demand in the short run. To the extent that deficit financing is being used to finance capital formation, it will contribute to increased capacity in the long run. This case has usually been associated with developing economies where the level of the productive stock of capital is deemed low relative to population. Yet Kalecki's reasoning applies also to countries at an intermediate level of industrialization displaying a high income per head, such as Australia. In this instance capital goods – including intermediate industrial products – are mostly imported. Thus, even if the country under consideration has a large productive capacity, deficit financing might, at least in the short run (depending on whether or not it is financing capital formation), be impeded by the balance of payments bottleneck which is likely to arise when factories and services are brought to full utilization. If spare parts and intermediate products have to be mostly imported, the external deficit may become an obstacle to full employment policies even if the economy is an advanced one in terms of per capita income. It follows that in such a situation the international monetary system should be based on the mechanism outlined by Keynes at Bretton Woods and reiterated more analytically by Kalecki during his tenure at the International Labour Organization (ILO) (Kalecki, 1946b).<sup>3</sup> They argued that the burden of adjustment for current account imbalances needs to fall on the surplus country. Otherwise if, as with the system originating from Bretton Woods and currently in place, the burden of adjustment is with the deficit country,

there will be a global tendency towards stagnation, as the only policies available for deficit countries are deflationary ones.<sup>4</sup> Furthermore, as international economic exchanges develop, and with them the spread of 'globalization', no country is sheltered from the balance of payment constraint, so that the Keynes–Kalecki view that the burden of the external deficit should not fall on the deficit countries becomes a prerequisite for the successful implementation of full employment policies.

In this context a structurally mature system with a wide range of input–output relations should have no major difficulties in reaching full employment by means of deficit spending. The most serious economic obstacle to the implementation of such a strategy consists in the difficulty of stimulating private investment by manipulating the rate of interest. If the interest rate is reduced during a recession and raised in the subsequent boom, full employment will be attained only momentarily, and average unemployment will remain considerable. Yet, if the interest rate is reduced during recessions but not increased during the boom, an anomalous situation will arise. By reducing the rate of interest from one recession to the next, matters will eventually reach the point of negative interest rates. Thus the stimulation of private investment by means of monetary policy is not a robust way of even attaining full employment. The task of achieving this goal falls on deficit financing and on direct state intervention in the economy.

#### **16.4 Maintaining Full Employment?**

At the economic level, the obstacles to maintaining full employment arise chiefly from the structural and, as we shall argue in the next section, the socio-political dimensions of the full employment regime. It is important to stress that, for Kalecki, the burden of the national debt did not constitute an economic hindrance to full employment. To begin with, a constant proportion of debt to national income does not create any problem in financing interest payments. If, by contrast, full employment has to be maintained through a rising budget deficit as a proportion of national income, then an appropriate tax will have to be devised in order to finance the increased interest burden. Kalecki recommends a capital tax, as this, unlike income tax, will not affect the profitability of investment if it is levied on all forms of wealth (including money balances) and hence is likely to leave investment unchanged. In the aggregate, government expenditure financed by a capital tax will not affect the income of capitalists as a class. The increase in income generated by government expenditures will be offset by the tax, so that some capitalists will be better off while others are worse off.<sup>5</sup> Hence, in strict economic terms, the threat to the regime of full employment arises from structural factors and not from the question of how to finance the national debt.

We have already mentioned that for Kalecki the possibility of the expansion of output and employment being tied to changes in productive

capacity rather than to changes in the level of investment and profits does not belong to the realm of a capitalist economy. In 'Full Employment by Stimulating Private Investment?', it is argued that the level of investment necessary to bring the system to full employment tends to be higher than the level of investment necessary to secure full employment over time. In other words, developed economies need a high rate of investment in the short run, but a much lower one when the stock of capital has to expand at the rate equal to the sum of the growth rate of population and productivity. The reason for the difference between the short-run and the long-run levels of investment is to be found in the structural characteristics of an advanced industrial system. Such a system would have a sizeable capital goods sector which, at full capacity, would be able to produce more capital equipment than that allowed by the full employment growth rate. Hence the advanced economy tends to an overaccumulation of capital. This contradiction cannot be overcome by interest rate policies unless it is wrongly assumed that the reduction in the interest rate will unambiguously lead to an increase in the amount of capital used per capita.

In effect, the contradiction pointed out by Kalecki is much stronger than he realized. According to Kalecki, whenever the level of long-run investment is lower than the level needed to secure full employment and full capacity, the difference can be made good by an increased budget deficit. In this way the reduction of the level of investment below its long-run requirements will not cause unemployment owing to the offsetting effective demand generated by the corresponding deficit. Yet a change in the structural composition of equipment must still take place. For, if the composition of equipment remains the same as before, the structural gap will re-emerge from period to period with unused capacity in the machine producing sector piling up from one period to the next. In this case, the solution lies not in deficit spending as such but in a planned change in the sectoral composition of capital equipment. Clearly, this process would entail a shift towards the consumption-wage goods sector which is tantamount to saying that investment can be lowered but capital equipment and output can still expand at the full employment rate. Although economically feasible, such a scenario would run against the mechanism of profit formation in a capitalist economy.

## **16.5 The Political Obstacles**

The maintenance of full employment is likely, however, to run into troubles well before the structural problems mentioned above make their appearance. In 'Political Aspects of Full Employment', Kalecki appeared relatively optimistic about the efficacy of fiscal policy in achieving full employment. However, he believed that there were fundamental '*political* problems' which make full employment incompatible with capitalism, arguing that 'there is

a political background in the opposition to the full employment doctrine' (Kalecki, 1943: 349). Kalecki highlighted three main 'reasons for the opposition of "industrial leaders" to full employment achieved by government spending' resulting in class/political pressure being brought to bear.

1. General dislike of government intervention, especially with respect to employment creation. This is reinforced by the power of industry over government in the absence of such intervention. In this case, employment and the level of economic activity is extremely responsive to the 'state of confidence' of the 'captains of industry'. This gives them significant power over government policy which fiscal intervention would blunt.
2. Dislike of the specific composition of government expenditure, especially with public investment and subsidization of mass consumption.
3. Dislike of the social and political consequences of long-term full employment:

We have considered the political reasons for the opposition to the policy of creating employment by government spending. But even if this opposition were overcome – as it may well be under the pressure of the masses – the *maintenance* of full employment would cause social and political changes which would give a new impetus to the opposition of the business leaders. Indeed, under a regime of permanent full employment, the 'sack' would cease to play its role as a disciplinary measure. The social position of the boss would be undermined, and the self-assurance and class-consciousness of the working class would grow. Strikes for wage increases and improvements in conditions of work would create political tension. It is true that profits would be higher under a regime of full employment than they are on the average under *laissez-faire*; and even the rise in wage rates resulting from the stronger bargaining power of the workers is less likely to reduce profits than to increase prices and thus affects adversely only the rentier interests. But 'discipline in the factories' and 'political stability' are more appreciated than profits by business leaders. Their class instinct tells them that lasting full employment is unsound from their point of view, and that unemployment is an integral part of the 'normal' capitalist system. (Ibid.: 351)

As a result of these considerations, Kalecki argues that the maintenance of full employment is incompatible with capitalism, unless there are fundamental changes to the underlying institutions:

'Full employment capitalism' will, of course, have to develop new social and political institutions which will reflect the increased power of the working class. If capitalism can adjust itself to full employment, a fundamental reform will have been incorporated in it. If not, it will show itself an outmoded system which must be scrapped. (Ibid.: 356)

What Kalecki is arguing, then, is that problems with effective demand are symptoms of what is wrong, but are not the fundamental problem. As a result, the use of fiscal policy to increase demand will provide a temporary solution, but what is needed is a more fundamental structural solution.

In a paper co-written with Kowalik and published posthumously, Kalecki took up the question raised at the end of 'Political Aspects of Full Employment'. What was the 'crucial reform' which had enabled capitalism to maintain full employment from the end of the Second World War until the beginning of the 1970s? The paper expanded the analysis of effective demand along lines suggested by Rosa Luxemburg, who argued that 'an indispensable condition for the realization of the surplus is the existence of outlets outside the capitalist system ... "non-capitalist markets"'. (Kalecki and Kowalik, 1971: 470). In other words, the problem of effective demand could only be solved in the long run through some external source, which absorbed demand while not contributing to production.<sup>6</sup> As was indicated above, general government expenditure can serve this function only to the degree that it is not associated with increased capital, either public or private: in other words, to the extent that this expenditure is on internal markets without major linkages to the economy. To a large extent, the importance of armaments expenditure in the cold war represents just such an external market, and was, therefore, the clue to the crucial reform.

Leaving aside the question of the moral cost of this policy, it is easy, with hindsight, to see its limitations.<sup>7</sup> Not long after Kalecki's death, there was a reversal of economic policy which brought an end to the high employment era. This was associated with two important international developments. After the de-escalation of the Vietnam war effort, in the early 1970s, there was a serious curtailing of armaments expenditure and especially of the US financed system of public expenditures directed towards East Asia (Halevi and Kriesler, 1998). At about the same time, the OPEC economies substantially increased the price of oil. The reaction to these events involved extreme tightening of fiscal and monetary policy by the major OECD countries, which led to the onset of stagflation. From then on, arguments about the necessity of 'sound finance' dominated policy discussion and the full employment era ended.

In retrospect, we can see that the 'crucial reform' was temporary, a result of a specific sociopolitical alignment of forces. These used the fear of the advance of socialism to build up specific interests, with the by-product that military expenditure ensured full employment. Once this alignment of interests fell apart, the 'old' rules re-emerged and the conflict between full employment and capitalism was restored. Capitalists, learning their lessons from the earlier episodes, strengthened their opposition to full employment policies, exactly along the lines suggested by Kalecki.<sup>8</sup>

For Marx, unemployment was essential for the survival of capitalism. During the accumulation process, profits drove capital accumulation, increasing

the demand for labour until all the excess labour was absorbed into the workforce, and wages rose. This put pressure on profits which, as a result, fell. The resulting crash led to structural change in the economy, and also regenerated the reserve army of the unemployed, which then put downward pressure on wages, allowing profits to rise; thus starting the cycle again. This was reinforced by investment in labour-saving technology, which increased stagnationist/ unemployment tendencies. The analysis was based on the inverse relation between the wage rate and rate of profits which was the foundation of classical economics.<sup>9</sup>

Although Kalecki took from Marx the idea of the incompatibility of capitalism and full employment, he saw it operating via a very different mechanism. Because Kalecki rejected the vision of competitive capitalism with little excess capacity, he developed a model where an increase in the wage rate and in the level of wages would, in fact, increase profits. As a result of the stagnationist tendencies which he identified in capitalism, he believed that increases in wages would increase effective demand and thereby move in the same direction as profits. In other words, for Kalecki, wages and profits were no longer antagonistic.

The incompatibility of capitalism and full employment results from a more fundamental aspect of the class relationship. As the above discussion indicates, unemployment was the means by which the capitalist class asserted its control over the working class. Without unemployment, the inherent contradictions of the system would exasperate the underlying social and political tensions, resulting in problems of discipline and instability. Either the institutional base of the economy would need to change or full employment would have to be sacrificed. In retrospect, we know that almost all capitalist economies took the easy way out and abandoned the commitment to full employment. This was sanctioned, in exactly the manner predicted by Kalecki, by economists who argued the impotence of fiscal policy and the need for 'sound finance'.

## 16.6 Some Conclusions

The discussion above has reiterated Kalecki's distinction between the possibility of achieving full employment in capitalist economies and the overwhelming difficulty of maintaining it. As has been pointed out, governments can, through the use of policy (fiscal rather than monetary), achieve full employment without major problems for the economy. Kalecki showed that the traditional objection to focusing on the problems of financing fiscal policy is easily overcome. However, although the achievement of full employment is essentially an economic matter, its maintenance becomes a political one.

Full employment conflicts with the interests of capitalists as a class. As a result, they will bring great pressure to bear on governments, which will

make the maintenance of that full employment extremely problematic. The main concern of capitalists is that full employment lessens their power, in the class struggle with workers, to impose conditions and wages which are favorable to them. Without changes to the fundamental institutions of capitalism, which will enable the resolution of some of this conflict without the cost of unemployment, the maintenance of full employment remains an unachievable goal in capitalist societies. In the last decade, the rationale for the withdrawal of government policy to stimulate employment has changed to a concern with globalization. However, despite the change in name, the fundamental contradiction remains unresolved.

## Notes

We wish to thank Professor John Nevile from the University of New South Wales, and Professor Hassan Bougrine of Laurentian University for their extremely helpful comments. Likewise, we are grateful to the participants in the annual conference of the History of Economic Thought Society of Australia (Canberra, 16–19 July 1999) for their criticisms and suggestions.

1. See Kalecki (1946a: 403).
2. Kalecki's original formulation is slightly different, but with exactly the same formal meaning. If  $i$  is the rate of change in imports and  $s$  that of exports,  $e$  becomes the change in the trade balance. Hence  $s = e - i$ . Now, if the share of profits in the value of production is  $\alpha$  and the share of imports is  $\beta$ , we have:  $(s/i) = [(e - i)/i] = (\alpha/\beta)$ . Thus the rise in the trade balance  $s$ , as long as  $s$  is positive, will lead to a rise in profits (Kalecki, 1971a).
3. See also Davidson (1997).
4. This is discussed more fully in Kriesler and Halevi (1996).
5. Kalecki (1944: 362–3, 1937).
6. This, of course, became the central thesis of Baran and Sweezy's important book, *Monopoly Capital* (1966). See also Halevi (1985).
7. Worswick (1999) discusses Kalecki's view on the limitations of armaments expenditure in providing a permanent solution to the problem of full employment.
8. Ironically, Kalecki had predicted the existence and influence of Friedman when he had spoken of the reliance of the captains of industry on economists talking about the importance of sound finance.
9. Marx (1977: ch. 25). 'Unemployment is therefore a necessary condition for accumulation and it is created by accumulation itself' (Sylos-Labini, 1983: 133).

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# 17

## The Influence of Michał Kalecki on Joan Robinson's Approach to Economics

G. C. Harcourt and Peter Kriesler

### 17.1 Introduction

Joan Robinson and Michał Kalecki were two of the intellectual giants of twentieth-century economics, and their contributions over a significant range of issues have had major impacts, particularly on heterodox economics. This chapter examines the significant communications between them, concentrating on the major cross-influences which were apparent from their first meeting.

In a number of places Joan Robinson describes her first meeting with Kalecki and the extraordinary impact it had on her. It marked the beginning of a life-long friendship. Joan Robinson was also the principal champion of Kalecki's independent discovery of the main propositions of Maynard Keynes's *General Theory*. Here are her accounts of their first meeting in early 1936, and of Kalecki's principled reaction to Keynes getting the lion's share of recognition. 'I well remember my first meeting with Michał Kalecki – a strange visitor who was not only already familiar with our brand-new theories, but had even invented some of our private jokes. It gave me a kind of Pirandello feeling – was it he who was speaking or I?' (Robinson 1964, 95).

Kalecki did not make any public claim to his independent discovery of the *General Theory*. I made it my business to blow his trumpet for him but I was often met with scepticism ... At the end of his life, Michał told me that he felt he had done right not to make any claim to rivalry with Keynes. It would only have led to a tiresome kind of argument. Perhaps scepticism about my claim for him was due to the difficulty of believing

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Revised from *Microeconomics, Macroeconomics and Economic Policy: Essays in Honour of Malcolm Sawyer*, 153–169, 2011, 'The Influence of Michał Kalecki on Joan Robinson's Approach to Economics', by Harcourt, G. C. and Kriesler, P. With kind permission from Palgrave Macmillan. All rights reserved.

that anyone was capable of taking this high line in our degenerate age. (Robinson 1977, 186)

The only reference to this question comes in the Preface to his posthumously published essays (Kalecki 1971). He refers to three papers published in 1933, 1934 and 1935 in Polish which contained, he believed, the essentials of *The General Theory* (Robinson, 1977, 186–7).

The ongoing debates between Joan Robinson and Kalecki, although they were fundamentally in sympathy with each other, must have been extraordinarily vigorous if we may judge from their published work, what is available of their correspondence and what is known independently of their personal characteristics (see Harcourt and Kerr 2009; Steindl 1981; and Harcourt 2006, Appendix 1). An example may be found in Joan Robinson's review article of *The Economics of Full Employment* (six studies in applied economics prepared at the Oxford Institute of Statistics), published in the *Economic Journal* in 1945 and reprinted in Volume I of her *Collected Economic Papers (C.E.P)*, 1951. She thought that overall – she exempted 'Mr Schumacher's contribution' – 'the essays [seemed] somewhat unnecessarily technical and severe in style. [Schumacher's essay provided] an interlude in pleasant pastures between the rocky uplands of Mr. Kalecki's austere exposition and the dense forest of Dr. Balogh's close-packed argument' (Robinson 1951, 99).

Kalecki and John Robinson were to spend many hours debating economic and political issues. In her published writings Joan Robinson makes frequent references to Kalecki's writings and views. In Prue Kerr and Murray Milgate's General Index to Joan Robinson's five volumes of *Collected Economic Papers* (1980), there are nearly two pages listing references by Joan Robinson to Kalecki; they cover many topics, arguments and disagreements.

Important amongst these were the discussions of Keynesian theory, and the attempt by both to extend the analysis. This is discussed in the next section. Particular emphasis is placed on Kalecki's paper on 'a theorem on technical progress' which he submitted to the *Economic Journal* under Keynes's editorship. Whereas Joan Robinson thought it an important paper extending Keynesian analysis, Keynes was contemptuous of the paper, which was eventually published elsewhere. Both Kalecki and Joan Robinson thought that one of the central issues determining the dynamics of capitalist accumulation was the role of investment and innovation. They were both critical of Keynes's analysis of investment, but disagreed about the role of 'animal spirits' as a force breaking the stagnationist tendencies of the system. This is discussed in section 3 below. The analysis of investment highlights the importance of methodological issues relating to path-dependence, which was an important area in which both Joan Robinson and Kalecki made fundamental contributions. This is discussed in section 4 below; the related methodological question of the relation between microeconomics and

macroeconomics is discussed in section 5. The final section deals with their discussions of the important political constraints on full employment.

## 17.2 Keynesian Debates

Sadly, Joan Robinson was never to see the translation in full into English by Ferdinando Targetti and Bogusława Kinda-Hass of Kalecki's remarkable review of Keynes's *General Theory* which was first published in Polish in 1936. It was only published fully in English in the December 1982 issue of *Australian Economic Papers*. By the time the issue reached Cambridge, Joan Robinson had suffered the severe stroke from which she never recovered.<sup>1</sup> The paper provides even more conclusive evidence that Kalecki had made independent discoveries and, moreover, that his approach, coming from his understanding of Marx's schema of reproduction, was more appropriate than Keynes's Marshallian background, for a solution of the realisation problem through the role of effective demand and the provision of a theory of the trade cycle. Furthermore, Kalecki's approach provided not only a theory of the levels of activity and employment in the short period but also a theory of the distribution of the product between wages and profits, and of the determination of total profits. This analysis was built on the base of dominant market structures and individual firms' behaviour within them, as well as on the different spending and saving behaviour of the two income classes themselves. Joan Robinson's analysis in her 1977 contribution to the Kalecki Memorial issue of the *Bulletin of the Oxford Institute* is her clearest exposition of these characteristics of Kalecki's approach (see Robinson 1977, 187–96; and Harcourt 2006, 11–16). In other words, as Joan Robinson repeatedly stressed, Kalecki was able to build the theory of effective demand on the basis of foundations incorporating imperfect competition.

Kalecki's analysis of the monetary and financial aspects of modern capitalism was not as deep or subtle or sophisticated as that offered by Keynes (as Joan Robinson always acknowledged). Nevertheless, Kalecki was not handicapped by having to throw off the classical dichotomy between the monetary and the real, especially in the long period, and the accompanying quantity theory of money as a theory of the general price level, as Keynes had to, much influenced by Richard Kahn (see Harcourt 1994, 1995; and Kahn 1984), as Keynes moved from *A Treatise on Money* to *The General Theory*.

Joan Robinson always considered that Kalecki took too simplistic an approach to the term structure of interest rates by concentrating on only one short-term rate and the bond rate. Kalecki, by contrast, thought that long-term rates were 'remarkably stable' and so could not exert a great influence on the level of investment (Kalecki 1944, 370). She approved of the thrust of Kalecki's principle of increasing risk, especially its emphasis on the imperfections of capital markets, but again thought it too simple to be a comprehensive account of firm size and the rationale for the use of retained profits to

finance investment. (In later life it seems that Occam's razor was not always her guiding principle.) However, Kalecki believed that Joan Robinson had not understood the basis of the argument. In one example, Joan Robinson differentiates her analysis from Kalecki's 'in respect of his treatment of finance as a bottleneck' (Robinson 1952, 129). In a letter commenting on the drafts of the book, Kalecki explicitly rejects this, arguing that 'I should like to state first that the role of finance in my theory does not correspond to what you say' (Osiatynski 1991, 538). Subsequently, in a letter to her dated 16 October 1964, Kalecki states: 'I did not ever say that the "firms invest all finance they can get". The principle of increasing risk was to show that they may not be willing to borrow as much as they could' (Osiatynski 1991, 591).

That said, it remains the case that the publication of *The General Theory*, meeting Kalecki in the mid-1930s and reading Marx systematically in the early years of the Second World War combined to bring about a sea change in her approach and in the structure of her theoretical contributions from then on, see Harcourt 1995. She stressed the importance of history while not accepting Marx's or Marxist ideology – she was basically a Left Keynesian and democratic socialist on the Left of the British Labour Party (see Harcourt and Kerr 2009, Ch. 5).

The changes may be most clearly seen if we compare her writings just before and after the publication of *The General Theory* where Marshallian method, concepts, and theory are still very much to the fore (just as they lay behind much of the structure of *A Treatise on Money* and *The General Theory* itself), with the structure of *The Accumulation of Capital* (1956) and *Essays in the Theory of Economic Growth* (1962) (see Harcourt and Kerr 2009, Chs 6–8). Thus, in her two 'interim reports', Robinson (1933a, 1933b), on the state of progress to *The General Theory*, both published in 1933 (though one was written and accepted by *Economica* in 1931; see *C.E.P.*, Vol. I, 1957, viii–ix and Harcourt and Kerr, 2009, 24–6), *A Treatise on Money*, with its Marshallian framework of short-period positions converging on the full long-period stock-flow equilibrium position, is the reference point. This is so, first, for her attempts to sort out the differences between Hayek and Keynes and, secondly, in her argument that Keynes, perhaps unknowingly or, at least, not fully realised by Keynes himself because he was writing a treatise on money, had provided the embryo of a *long-period* theory of activity and employment (see Robinson 1951, 56).

Then, in her introductory book on the new theory (1937a) and in her first attempt to extend the new theory to the long period, especially in her essay on the long-period theory of employment in (1937b), the Marshallian approach and concepts as well as Keynes's new theoretical concepts dominate. In correspondence with Joan Robinson on this paper, Kalecki insisted that the cycle was a more likely outcome than her posited long-period equilibrium. In a letter written to Joan Robinson, dated 3 October 1936, and commenting on her 'The Long-Period Theory of Employment',

Kalecki argues that, as a result of a fall in the rate of interest, 'the system must not reach the new long-run equilibrium in the way described in the [last] part of your paper, or fluctuate [a]round this equilibrium, but it can also produce fluctuations [a]round the ascending curve' (Osiatynski 1990, p. 503). This denial of a position of long-period equilibrium, and the emphasis on the role of the cycle and of cyclical growth, were to prove influential in Joan Robinson's later works.

Moreover, although she argued that *The Economics of Imperfect Competition* (1933c) contained a serious critique of the application of marginal productivity theory, and the then new, 'all-the-rage' concept of the elasticity of substitution dominate the macro theory of distribution in the *Essays* volume. It is allied with the Kaleckian–Keynesian theory of the saving function which stresses the different values of the marginal propensities to save as between wage-earners and profit-receivers. But, in the postwar years – during the war she had published *An Essay on Marxian Economics* (1942) and innumerable papers and talks in a Left-Keynesian sense on Keynesian theory and its application to monetary, fiscal and incomes policy (see Harcourt and Kerr, 2009, Ch. 5) – she adopted and adapted Marxian-Kaleckian constructions in her new thinking about generalising *The General Theory* to the long period as explicated in *The Accumulation of Capital* (1956) and *Essays in The Theory of Economic Growth* (1962).

At the same time, she was developing her critique of the mainstream theory of profits (or, rather, in her opinion, the absence of any such theory) and the neoclassical concept of capital, partly as a result of her need, as she saw it, to analyse the choice of technique in the economy as a whole. This was to her, a secondary, although analytically difficult, complication in her theory of long-period growth. There is little evidence that Kalecki was much interested in this aspect of her work; his emphasis was more on the analysis of technical progress in the processes of accumulation and growth, on which, of course, Joan Robinson also worked, and commented on her debt to Kalecki for his work bringing technical progress and accumulation into line with imperfect competition and the analysis of profits and employment. Indeed, she stood up for one of Kalecki's articles on the topic against the sceptical response of Keynes in his role as editor of the *Economic Journal*. Kalecki submitted 'A theorem on technical progress' to the *Economic Journal* for consideration. Keynes did not publish it, and was extremely critical of it in correspondence with Joan Robinson. From the tone of these comments there can be little doubt that Keynes would have failed these papers had he been marking them for an examination. In particular, 'Here is Kalecki's article. As I said the other night, after a highly rational introduction of a couple of pages my first impression is that it becomes high, almost delirious nonsense' (4 February 1941; Osiatynski 1991, 530).

In later letters he calls Kalecki's arguments in that paper 'esoteric abracadabra' (531) and writes of it: 'So I am of the opinion that the article is

pretentious, misleading, inconclusive and perhaps wrong. I would rather have cheese to a weight equal to the paper it would occupy in 5,000 copies of the Journal' (12 March 1941; Osiatynski 1991, 535).

Keynes is particularly critical of the assumptions Kalecki makes about the generality of excess capacity in capitalist economies. For Kalecki, this was a stylised fact describing modern economies, while Keynes was extremely sceptical of it: 'Is it not rather odd when dealing with "long-run problems" to start with the assumption that all firms are always working below capacity' (4 February 1941; Osiatynski 1991, 530). Joan Robinson replied that under-capacity was a normal result of the theory of imperfect competition. This, however, did not impress Keynes:

For I am still innocent enough to be bewildered by the idea that the assumption of all firms always working below capacity is consistent with 'a long-run problem'. To tell me that 'as for under-capacity working that is part of the usual pack of tricks of imperfect competition' does not carry me any further. For publication in the Journal an article must pass beyond the stage of esoteric abracadabra. (12 February 1941; Osiatynski 1991, 531)

Joan Robinson strongly defended Kalecki against Keynes's criticism on a number of levels. It is clear that she both supported Kalecki's arguments and thought they were important: 'In general I think Kalecki is explaining mysteries not creating them' (Osiatynski 1991, 533). 'Kalecki is on to something important' (Osiatynski 1991, 534). In particular, she defended Kalecki's use of the analysis of imperfect competition against Keynes's criticism by pointing out that 'it is in all the textbooks now', and demonstrating why, even in 'full equilibrium', there would be surplus capacity (532).

In this correspondence we see both Keynes's scepticism in accepting the analysis of imperfect competition, and Joan Robinson's acceptance of Kalecki's version of it.

### 17.3 Investment and Innovation

Kalecki wrote extensively on investment decision rules and the determination of accumulation in capitalism and subsequently in socialism. Roy Harrod and his problems influenced both Kalecki and Joan Robinson. They took rather different tacks in relation to what was central in Harrod's contributions and their own interests. In her review article of Harrod's 1948 book in the 1949 *Economic Journal* (see *C.E.P.*, Vol. I, 1951, 155–74), she writes that 'Mr. Kalecki's pioneering work ... on a system of analysis dealing with a dynamic society [had] been very little followed up [and that] Mr. Harrod [made] no reference to him' (*C.E.P.*, Vol. I, 1951, 155). Joan Robinson also gave much greater emphasis to Golden Age models than did Kalecki.

She was undoubtedly influenced by Richard Kahn's insistence that Golden Age analysis was the necessary flexing of intellectual muscles before moving onto the really important and relevant development of process analysis of growth in modern developed and developing economies (see Kahn, 1959, 1972). The latter was always Kalecki's priority in these areas. He always analysed growth in terms of economic cycles, and although his analysis of the trend changed over time, it was never around a Golden Age trend (Sawyer 1985, 66–8; Nevile and Kriesler 2011).

Kalecki and Joan Robinson agreed that a thorough knowledge of 'the rules of the game' of societies, of their historical and sociological characteristics and of their inherited institutions were all necessary before any meaningful progress in understanding their behaviour and in making policy proposals would be possible. (Unlike many mainstream economists, especially those hailing from Chicago, they did not believe it was possible to give advice as they stepped off the plane because 'have model, will travel'.) In Joan Robinson's essay, 'Marx, Marshall and Keynes' (Robinson 1955) in illustrating how economists spanning the whole spectrum of views and approaches have lost sight of 'the most valuable parts of Marx's theory, she cites, as an example:

the schema for expanding reproduction which provide a very simple and quite indispensable approach to the problem of saving and investment and the balance between the production of capital goods and the demand for consumer goods. It was rediscovered and made the basis for the treatment of Keynes's problem by Kalecki and re-invented by Harrod and Domar as the basis for the theory of long-run development. (7)

Kalecki had used the reproduction schemas in his important paper, 'Money and real wages' (Kalecki 1939) to illustrate that it was problems with effective demand, rather than the wage level which were the chief cause of unemployment, and elsewhere used them to analyse long-run capitalist growth (Kalecki 1968b).

Kalecki and Joan Robinson were critical of Keynes's theory of investment, especially as was set out in formal terms in Chapter 11 of *The General Theory* on the marginal efficiency of capital. (In recent years it has been fashionable to be particular chapters of *The General Theory* Keynesians; Joan Robinson was not a Chapter 11 Keynesian but she was very much a Chapter 12 'animal spirits' one. Kalecki, as we have noted, was his own man.) In the criticism of the formal structure of Keynes's theory, it may be surmised that Kalecki was the leader with Joan Robinson absorbing his criticism, following it and extending it, most clearly in her banana diagram (1962, 48).

As we noted, in 1936 Kalecki had written a remarkable Polish-language review article about *The General Theory* (Targetti and Kinda-Hass 1982). In this, he first set out, using his own approach, the determination of the

short-period level of employment (and, explicitly, his macro theory of distribution). To do this, he provisionally took the rate of investment in the short period as a given. Then, in the second part of the article, he criticised Keynes's account of the determination of investment expenditure as being an application of static tools and concepts to what is essentially a dynamic process. In other publications in English, he elaborated his critique and Joan Robinson built on this in a number of places in her own papers – for example, in her paper on 'Keynes and Kalecki' in the *Essays* in his honour (Robinson 1964, 96–7) and in her Kalecki Memorial lecture (Robinson 1977, 193–5).<sup>2</sup>

Abba Lerner (1944) had made an internal critique of Keynes's theory, concentrating on Keynes's failure to distinguish between the marginal efficiency of capital (m.e.c.) and the marginal efficiency of investment (m.e.i.) in his theory of the determination of short-period investment expenditure. Lerner argued that the essence of Keynes's theory could be captured in two propositions. First, in full, stock-flow equilibrium,  $m.e.i. = m.e.c. = r$ , where  $r$  = rate of interest. Secondly, in short-period flow equilibrium,  $m.e.i. = r < m.e.c.$  (see Harcourt 2006, Ch. 4).

Kalecki's and Joan Robinson's criticism related to Keynes's arguments as to why, in a given situation, there is a downward-sloping relationship between  $r$  and planned investment expenditure in the short period. (Lerner had accepted Keynes's arguments for this – hence his was an internal critique.) Keynes usually assumed marginal cost pricing in all industries and diminishing marginal productivity of labour in the short period, so that if higher levels of output are established, prices will be higher (in the case of investment, the prices of capital goods), and so the value of the m.e.i. will be lower. But this argument only goes through (as we modern theorists say), if individual business people use in their calculations of expected rates of profit on planned investment (m.e.i.), the short-period equilibrium prices of the relevant capital goods. Otherwise, the overall outcome of individual actions will not be the level of output that establishes that equilibrium price and therefore value of  $m.e.i. = r$ . Keynes, in effect, assumes rational expectations on the part of business people rather than the more common sense behaviour that they would use the current, existing, non-equilibrium price of capital goods in their calculations.

Keynes also proposed a second, more long-period argument, namely, that the more accumulation occurred in the present, the greater would be the future capacity of industries and so the further out to the right would be their respective short-period supply curves. He assumed that the longer-period demand curves for products could be taken as given (and downward sloping) so that expected future prices of products would be lower, the more investment is done now, and therefore the lower would be the m.e.i. as well. But as Kalecki and Joan Robinson (and also Tom Asimakopulos) pointed out, here Keynes was not being true to himself.



Usually, he argued that because the future was uncertain, the present played a large (probably too large) part in determining what would be expected to happen. Higher investment now also meant higher prices, profits, output and employment now and these events, on his usual argument, would be projected into the future. How then could the long-period demand curves be taken as givens – would they not, too, be further out to the right, the more investment that was done now? If this were the case, it was not certain that expected prices would be lower nor that the values of m.e.i. would be lower (see Harcourt, 2006, Ch. 4; Sawyer 1985, 194; and Kriesler 1997). '[T]he result of this is that, instead of Keynes providing a theory of unemployment equilibrium, Kalecki argued that it is really a theory of the business cycle' (Kriesler 1997, 311).

So both Kalecki and Robinson rebuilt Keynes's theory on the basis of the two-sided relationship between profitability and accumulation established by Kalecki (and Keynes) – that actual investment played a dominant role in determining actual profitability and actual profitability influenced expectations of what profitability would be, which in turn influenced the rate of investment that would be planned to be undertaken. Given the state of long-term expectations and financial conditions, more accumulation would be planned, the higher was expected profitability. Those two relationships constitute Joan Robinson's banana diagram, see Robinson, 1962, 48, in which the rate of accumulation and profitability are simultaneously determined at the top point of intersection of the two relationships, see Harcourt, 2006, Ch. 4. (The bottom point of intersection is a point of unstable equilibrium.)

One important area of disagreement between Joan Robinson and Kalecki was on the nature of accumulation and stagnation in capitalist economies, which represented fundamental differences on their view of the future of the system. Kalecki stressed the stagnationist tendencies of capitalist economies, believing that these could only be overcome by inventions – that is, technical progress:

'I believe that the antimony of the capitalist economy is in fact more far-reaching: the system cannot break the impasse of fluctuations around a static position unless economic growth is generated by the impact of semi-exogenous factors such as the effect of innovations upon investment' (Kalecki 1962 p. 411; see also Kalecki's letter to Joan Robinson 25 July 1951 Osiatynski 1991 539).

For Joan Robinson, by contrast, the animal spirits of capitalists would maintain investment and capitalist growth:

This was a subject about which I was arguing with him, on and off, for many years. He maintained that inventions (technical progress) raise the prospects of profits for capitalist firms and encourage investment. I followed Keynes and Marx in regarding the desire of capitalists to expand

their operations as an inherent characteristic of the system. I expressed this view in Keynes's phrase about 'animal spirits' which caused Kalecki to regard it as somehow irrational. (Robinson 1971, 90).

#### 17.4 Methodological Issues

Joan Robinson's construction of her banana diagram reflects two strands in the literature: Keynes's shifting equilibrium model (see Keynes 1936, 292–4), and Kalecki's never-ending search for a satisfactory theory of accumulation in capitalism. This culminated in his 1968 *Economic Journal* paper, published only two years before his death, on trend and cycle. There, he argued that the long-term trend was *not* a separate or independent entity, but the statistical outcome of happenings in successive short-term situations.<sup>3</sup> 'In fact, the long-run trend is but a slowly changing component of a chain of short-run situations; it has no independent entity and the [analysis] should be formulated in such a way as to yield the trend-cum business cycle phenomenon' (Kalecki 1968a, 435).

This was his version of the process of cyclical growth, ideas that had been independently developed by Richard Goodwin (see, for example, Goodwin (1967)). Joan Robinson's later writings approached agreement with Kalecki and Goodwin (see Harcourt and Kerr 2009, 96), but she did not have the formal tools that would have allowed her to set out her version of the approach, should she have wanted to (formally, we mean!).

She was very careful to point out the limited nature of the banana diagram: how even if the economy iterated onto the upper intersection point where what was expected and what happened coincided (her version of Harrod's warranted rate of growth), this was not necessarily a sustainable position. The very process of moving through historical time could change the factors determining the two relationships in any given initial situation, that is to say, path-dependence would almost certainly occur.

This highlights another important influence of Kalecki on Joan Robinson, namely in relation to the nature of the long-period analysis. For Kalecki, the concept of a long-period equilibrium was extremely problematic, as is indicated by the earlier quote. From the very beginning of their relationship, Kalecki stressed this point to Joan Robinson, insisting that the cycle was a more likely outcome than a long-period equilibrium. In a letter written to Joan Robinson, dated 3 October 1936, and commenting on her 'The Long-Period Theory of Employment', Kalecki argues that, as a result of a fall in the rate of interest, 'the system must not reach the new long-run equilibrium in the way described in [the] last part of your paper, or fluctuate [a]round this equilibrium, but it can also produce fluctuations [a]round the ascending curve' (Osiatynski 1990, 503). Throughout the later periods of her work, Joan Robinson contrasted what she called history versus equilibrium. By this she meant a rejection of the comparative static method of comparing

equilibrium in favour of an analysis of the path the economy takes in historical time. In particular, she argued that equilibrium, if it existed, would always be path dependant, though, in the end she did not think that there was an equilibrium to be found or approached, or even one waiting to be found. Already, in the early correspondence between Kalecki and Joan Robinson, we see Kalecki attempting to push her to this conclusion, in his rejection of the notion of equilibrium, and, in addition, with his rejection of the long period as having a separate identity, and in his emphasis on path determinacy: 'the rate of growth at a given time is a phenomenon rooted in past economic, social, and technological developments rather than determined fully by the coefficients of our equations as is the case with the business cycle' (Kalecki 1968a, 450).

### 17.5 Microfoundations?

Despite the fact that the distinction was suggested by Keynes (Keynes 1936, p. 293), Joan Robinson was very critical of the modern distinction between micro and macro analysis. One of the most powerful statements of her view is in 'What are the questions?' (see Robinson, 1977a, 4). One cannot exist without the other, for '[m]icro questions ... cannot be discussed in the air without any reference to the structure of the economy in which they exist [or] to the process of cyclical and secular change. Equally, macro theories of accumulation and effective demand are generalisations about micro behaviour ... If there is no micro theory, there cannot be any macro either.'

Moreover, the macro setting for orthodox micro theory is a kind of vague Say's Law world which, until very recently anyway, is *not* the macro world that is analysed in *its* own separate compartment. This implies that she would not have accepted the modern search for microeconomic foundations of macroeconomics (nor, probably, macroeconomic foundations of microeconomics, see Crotty, 1980). In this she is very close to Kalecki's view: '[t]he macro and the micro analysis each tell part of the story, and it is only through their interrelation that the whole account emerges. In this way it can be seen that the micro and the macro analyses ... lie side-by-side, existing interdependently, that is, on an equal footing' (Kriesler 1996, 66). Joan Robinson was clearly influenced by Kalecki's microanalysis, both in terms of his work on mark-up pricing, and also on the relation between microeconomic and macroeconomic aspects of the determination of output.

In a number of places Joan Robinson has argued that Kalecki's version of pricing theory is 'more robust than Keynes' and also a major improvement on her own work in *The Economics of Imperfect Competition* (Robinson 1977 p. 187). She became critical of her book due to its comparative static nature, which, she argued, ignored the fundamental issues relating to time and to the problems of getting into equilibrium discussed above. She believed that Kalecki's analysis avoided these problems. Kalecki's mark-up approach was

seen as being more dynamic, and also related the pricing decision and distribution to the determination of output, while presenting an alternative theory of distribution to the neoclassical one, of which Joan Robinson was so critical. 'It was Michał Kalecki rather than I who brought imperfect competition into touch with the theory of employment' (Robinson 1933c, viii).

In Kalecki's view, in manufacturing industry, prices are set by producers as a mark-up over costs. For Kalecki, the main determinant of the mark-up was the degree of competition in the relevant market. However, Joan Robinson was unhappy with this formulation of pricing as it was strictly defined in 'short-period terms'. 'I objected that there must be some long-period element in the relation of prices to costs' (Robinson 1977, 189).

What Joan Robinson particularly appreciated in Kalecki's work was the integration of the analysis of pricing with the analysis of effective demand, which she saw as the appropriate path for future development:

There are two elements in Kalecki's analysis, the share of profit in the product of industry is determined by the level of gross margins, while the total flow of profits per annum depends upon the total flow of capitalists' expenditure on investment and consumption... In this way, Kalecki was able to weave the analysis of imperfect competition and of effective demand together and it was this that opened up the way for what goes under the name of post-Keynesian economic theory. (Robinson 1977, 193)<sup>4</sup>

Joan Robinson was particularly critical of modern microeconomic theory, which, she argued, ignored important aspects of production associated with historical time and uncertainty, unlike Kalecki's analysis where both played a central role in both micro and macro analysis (Robinson 1971a, 95–7).

## 17.6 The Political Trade Cycle

Joan Robinson was also influenced by Kalecki's analysis of the political limits to full employment. As early as 1943, Kalecki was warning that there was an important distinction between achieving full employment after a slump and maintaining it. He argued that, because unemployment served important functions in capitalist economies, they were not compatible with the maintenance of full employment. Unemployment was essential for the survival of capitalism as it was the means by which the capitalist class asserted its control over the working class. Without unemployment, the system would exacerbate the underlying social and political tensions resulting in problems of discipline and instability. 'Indeed, under a regime of permanent full employment, the "sack" would cease to play its role as a disciplinary measure. The social position of the boss would be undermined, and the self-assurance and class-consciousness of the working class would grow' (Kalecki 1943, 351).

Joan Robinson reinterpreted Kalecki's analysis as providing the basis of a model of the political trade cycle. According to Joan Robinson's interpretation, although governments now know how to create full employment, for the reasons discussed they would not want to do so. However, too much unemployment would have electoral implications. 'Thus [Kalecki] predicted that after the war we should experience a political trade cycle with alternating *stop* and *go*' (Robinson 1977, 195).

## 17.7 Summary and Conclusions

In this chapter, we have documented the importance of the intellectual relationship between Michał Kalecki and Joan Robinson. It was a fertile relationship, one in which two great intellects influenced each other's economic ideas and thinking, to the considerable benefit of the discipline. The discussion has highlighted a number of important themes in their relationship, which their debates helped to refine. In particular, the nature of path dependence, and the interrelationship of all aspects of economic behaviour were consistent themes in their discussions. Fittingly, these are important starting points for post-Keynesian economics, not least as it has been developed by Malcolm Sawyer.

## Notes

We have chosen to write on Michał Kalecki's influence on Joan Robinson for two main reasons. First, Malcolm has made many important contributions to our understanding of Kalecki's contributions and of the theory of the firm. Secondly, both of us much admire and have been greatly influenced by Kalecki and Joan Robinson. Sadly, while we both knew Joan Robinson, neither of us ever met Kalecki – every time he was in Cambridge in the postwar period, GCH was in Australia and PK was either not born or also was in Australia. Finally, may we say how much we admire Malcolm's many contributions to post-Keynesian economics, in both his writing and teaching, and how much we value his long-sustained friendship and support? It is a privilege to contribute to this collection of essays in his honour.

1. GCH has often written that the translated review is the most important paper published in *Australian Economic Papers* during his 20 or so years as joint editor, see Harcourt (2006, 21), for a full account of how it came to be published.
2. For a discussion of the differences between Keynes and Kalecki see Sawyer (1985, ch. 9) and Kriesler (1997).
3. Not only is this a fundamental criticism of the distinction between existence and stability of equilibrium with overall independence between the factors responsible for each, but also of the statistical procedure of breaking down time series into trends and cycles as though they too were each the outcome of separate factors independent of those responsible for the other.
4. Originally, Joan Robinson had incorrectly distinguished these two as two different theories, with the mark-up pricing theory explaining distribution in the short run, while the macroanalysis was seen as a long-run theory (Robinson 1964, 99).

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# 18

## Michał Kalecki and Rosa Luxemburg on Marx's Schemes of Reproduction: Two Incisive Interpreters of Capitalism

G. C. Harcourt and Peter Kriesler

### 18.1 Introduction

In addition to his own contributions to economic thought, Tadeusz Kowalik has added substantially to our knowledge of three great Polish economists, Rosa Luxemburg, Oskar Lange and Michał Kalecki. He edited collections of their works and has contributed to our understanding of their contemporary relevance. He co-authored with Kalecki a sequel to the latter's fundamental contribution to political economy, 'Political aspects of full employment' (Kalecki, 1943), considering the question of whether a crucial reform had occurred in capitalist economies to allow full employment to be maintainable (Kalecki and Kowalik, 1971). Kowalik was joint editor of the Polish editions of the collected works of both Oskar Lange and (with Jerzy Osiatyński) Kalecki, as well as editing a new edition of Rosa Luxemburg's *The Accumulation of Capital*. In addition, he has written extensively on the writings of Kalecki and Luxemburg, arguing that 'Michał Kalecki's theory is the best theoretical continuation and solution to the main problems that Rosa Luxemburg wanted to solve in her *magnus opum*' (Kowalik, 2009: p. 102).

Because of his fine scholarship, we deemed it most appropriate for us to reconsider the contributions of Kalecki and Luxemburg to our understanding of modern capitalist economies.

In particular, it is appropriate to concentrate on Rosa Luxemburg's *The Accumulation of Capital* (1913), which is her *magnus opus*. Both Joan Robinson (1951) and Kowalik (2003) have written important introductions to its English translation. Kalecki wrote about its contributions and limitations in an analysis of how capitalism might be expected to develop, comparing her

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Revised from *The Legacy of Rosa Luxemburg, Oskar Lange and Michał Kalecki*, 1: 9–18, 2014, 'Michał Kalecki and Rosa Luxemburg on Marx's Schemes of Reproduction: Two Incisive Interpreters of Capitalism', by Harcourt, G. C. and Kriesler, P. With kind permission from Palgrave Macmillan. All rights reserved.



conjectures with those of Tugan-Baranowski (see Kalecki, 1967: pp. 451–458). Luxemburg's book was an important milestone in Joan Robinson's development of her own *magnum opus* of the same title, Joan Robinson (1956). As we have argued elsewhere (Harcourt and Kriesler, 2011; Harcourt and Kerr, 2009), Kalecki was the major influence on the structure of the analysis in her *Accumulation of Capital*.

## 18.2

The starting point for all these authors was their understanding of Marx's schemes of production and reproduction in an analysis of the laws of motion of the capitalist mode of production. Kowalik gives an excellent summary of the analytical similarities of the two:

As far as theory is concerned, both R.L. and M.K. took from Marx the very notion of capital, and the conviction that the capitalist system polarized society by two antagonistic classes: the capitalists and the workers. Both were interested more in the dynamics of capitalism than in static theory of value and price [ ... ] both used the Marxian reproduction schemata to search for the limits of capitalist accumulation. Using more modern words, they treated capitalism as a system, limited by effective demand, sharply distinguishing the production of commodities from their realization. Of course, both rejected so-called Say's law. Both treated rivalry and instability as permanent features of capitalism. (Kowalik, 2009: p. 111)

However, there also are important points of difference. Both Kalecki and Joan Robinson recognised, as Luxemburg and Tugan-Baranowski seem not to have, the true purpose of the schemes.<sup>1</sup> Luxemburg and Tugan-Baranowski made the same mistake as have many latter-day mainstream economists and many Marxist scholars,<sup>2</sup> in that they interpret the schemes as forerunners of steady-state growth models which nevertheless constitute descriptive analysis of the development of capitalism.<sup>3</sup> Joan Robinson's Golden Ages were never so intended; in contrast, Nicholas Kaldor's growth models of the 1950s and 1960s were; see, for example, Kaldor (1955–56, 1957) and Kaldor and Mirrlees (1962). Robert Solow (1956) and Trevor Swan (1956) were providing their solutions to problems thrown up by Harrod's seminal article (1939) and book (1948) in explicitly highly abstract theoretical contexts, but their many surrogates proceeded as if they had also provided descriptive analyses.

As Sardoni shows conclusively, and as Joan Robinson and Kalecki had recognised, this was not Marx's purpose. Rather, he was attempting to set out the conditions that had to be satisfied in order that, as we would say now, aggregate demand and aggregate supply and their compositions as created in the three Departments would all match up, that is, be purchased.

Marx's purpose was to show how unlikely it was that individual capitalist decision makers left to themselves could collectively bring about these two sets of matches; and if they did not, the sources of instability and crisis in capitalist dynamics would have been revealed. This was also the substance of Joan Robinson's criticism of Harrod, that he had rediscovered Marx vol II without knowing it, a criticism which he gallantly took on board (Robinson, 1953: p. 263). Similarly, Kalecki argued that the 'basic formula of the Harrod-Domar theory ... [and] ... In fact, many of the contemporary theories of growth are simply variations on the theme of Marxian schemes of expanded reproduction' (Kalecki, 1968a: p. 63). Moreover, as Sardoni argues, even if both sets of conditions were to be satisfied in any one period, this does not imply steady-state growth from period to period. According to Kalecki, equilibrium would require very specific – and unlikely – investment behaviour:

As regards Marx's schemata, his system can be in equilibrium only when automatic expanded reproduction is assumed, i.e. when there is a complete reinvestment of accumulation. ... From the spirit of Marx's analysis, it follows that this reinvestment does not always take place, and hence there is a deviation from his schemata. This deviation, which Marx did not systematically investigate is more consistently emphasised by Rosa Luxemburg. The supply nature of Marx's schemata lies in his assumption of total reinvestment of accumulation. However, from this it follows that the schemata represent a certain ideal equilibrium, which is in contradiction with the fundamental and often-quoted statement of Marx on the incommensurable development of the forces of production and the expansion of purchasing power. Long-run instability appears in the schemata as soon as the automatic reinvestment of accumulation is no longer assumed. (Kalecki, 1965: p. 559)

### 18.3

Kalecki points out that Tugan-Baranowski and Luxemburg are poles apart in their discussions of how the market operates in the Marxian schemes of reproduction. Tugan-Baranowski in effect is a Say's Law person, denying the possibility of a general glut, arguing that what is produced in all Departments will always be purchased, either internally or by the other Departments, so that the only constraint on capitalist development is how fast productive capacity increases in these circumstances.

Luxemburg, in contrast, argues that there is always insufficient aggregate demand in a closed economy, so that to continue to develop, capitalist economies must export to the (non-capitalist) rest of the world, usually through imperialistic conquests, in order to ensure there are markets and supplies of raw materials abroad.

*The Accumulation of Capital* represents one of the earliest statements of the stagnationist thesis which was popularised by Kalecki, Steindl, Baran and Sweezy. Underlying this thesis is the argument that 'under monopoly capitalism the laws of capitalist accumulation have been fundamentally changed' (Halevi and Kriesler, 1998: p. 194). Luxemburg demonstrated via Marx's reproduction schemas that capitalism had problems in the long run maintaining sufficient effective demand to avoid stagnation. Ever expanding accumulation requires ever expanding demand, and it is unclear where this demand comes from, as a result of 'the deep and fundamental antagonism between the capacity to consume and the capacity to produce in a capitalist society, a conflict resulting from the very accumulation of capital which periodically bursts out in crises and spurs capital on to a continual extension of the market' (Luxemburg, 1913: p. 347).

Her solution: external markets – 'buyers outside capitalist society' (Luxemburg, 1913: p. 350) – that are external to the global capitalist system, and/or armaments expenditures. Kalecki (and Kowalik) clearly understood that this was her important contribution:

For her, the basic contradiction of capitalism is not disproportion of development of individual branches of industry but the separation between production and market. In her analysis of the divergence between the development of forces of production and relations of production, the main problem is that of realization of the accumulated surplus. (Kalecki and Kowalik, 1971: pp. 469–470)

Kalecki finds it 'most interesting that both authors commit important errors [yet] their theories have a correct picture of some essentials of [the] capitalist economy' (Kalecki, 1967: p. 451). Tugan-Baranowski rightly sees that satisfaction of consumer demand is not the driving force of capitalism, which is characterised by him as 'antagonistic in nature', with the making of profits and the accumulation of capital the ultimate driving forces of capitalist development. So for Tugan-Baranowski (and Kalecki), what has become the central mainstream notion, that it is the consumer queen trying to maximise her expected lifetime utility through consumption and saving that is the driving force, is not in fact to be found in the actual workings of capitalist markets and economies.

Kalecki accepts that Luxemburg's 'external markets', while not the sole driver of capitalist development, are nevertheless an 'important part'. He finds 'a point of intersection' for the two poles apart theories in present day (read 1960s/1970s) capitalism, especially the USA, where the market created by government for production of armaments plays a decisive role (Kalecki, 1967: p. 451).

The error in Tugan-Baranowski's analysis, Kalecki argues, is that he confuses what is possible in development with what must always actually happen.

Kalecki's argument has some resemblance to an analysis of the conditions needed for Harrod's warranted rate of growth ( $g_w$ ) to coincide with Harrod's natural rate of growth ( $g_n$ ) and to Harrod's argument as to why, if actual growth ( $g_a$ ) is not equal to  $g_w$ , the economy will give out signals that, under plausible conditions, leads  $g_a$  to depart further and further from  $g_w$ . So, even if  $g_a$  were momentarily to coincide with  $g_n$ , this would not be a sustainable position. Kalecki argues that accumulation associated with embodying innovations that result from technical progress may produce growth, though not necessarily at such a rate as to eliminate deficient effective demand. This possibility, which is not necessarily a result of 'external markets', provides the starting point for Kalecki's discussion of Luxemburg's analysis.

## 18.4

He first points out that she argues as if the capitalist class as a whole decide collectively how much investment to do. And if the class perceives that there is not a sufficient market for the surplus of goods corresponding to accumulation, it is led to the query: 'So why invest?' (Kalecki, 1967: p. 455). Kalecki's knock-down blow follows immediately: 'Now capitalists do many things as a class, but they certainly do not invest as a class' (Kalecki, 1967: p. 455). If they did, he notes, they may well do so in such a way as to vindicate Tugan-Baranowski's Say's Law analysis.

Because Luxemburg regards exports from the capitalist system as the mainspring of development, she has a pessimistic view of the future of capitalism. As the capitalist system cumulatively creates the rest of the world (including the non-capitalist sectors of its own society) in its own image, it at the same time eliminates the possibility of future development. Allied with her basic view there is, according to Kalecki, a serious over-estimate of the role of 'external markets', in that she identifies the market for the surplus created with *total* exports; whereas, Kalecki argues, it is only *net* exports (induced by the export of capital) that perform this role.

Kalecki points out that Luxemburg did have a role for expenditure on armaments in the process of staving off the decline of capitalism. But, again, she overplayed her hand, in that she did not ask how the expenditure would be financed. Kalecki points out that if taxation is the source of finance, its incidence ultimately falls on wage-earners and their consumption expenditure, so largely offsetting the expansionary effects of expenditure on armaments and its role in absorbing the surplus of goods associated with the process of accumulation – a balanced budget multiplier type of argument. Only if armaments are purchased from the proceeds of the issue of government bonds (or by writing cheques on the central bank) will their greatest potential impact be realised.

Kalecki also argued that Luxemburg missed an important extension of her armaments argument, which was applicable to government expenditure in

general. Government expenditure is an 'external market' with respect to the capitalist production.<sup>4</sup> However, as with armaments, it is only government expenditure which is not offset by taxes (particularly on the working class), so it is either 'financed' by the central bank or by the sale of government securities to the private sector. As 'capital is here being "exported" to the "foreign market" created by the government' (Kalecki, 1967: p. 457) so government expenditure acts as an '*internal export* ... It is *internal* to the closed economy, but it is *external* to the capitalist area' (Bellofiore, 2009b: p. 60, emphasis in original). In addition, Kalecki extends the analysis of 'external' factors which can explain accumulation to include 'semi-autonomous' influences such as innovation (Kalecki, 1968a; see also Steindl, 1981: p. 148).

Kalecki concludes that although there are serious errors in the theories of both Tugan-Baranowski and Luxemburg, both showed 'a striking perspicacity' in their evaluation of certain basic elements of late stage capitalism, so contributing to 'the understanding of the perverse world in which we are living' (Kalecki, 1967: p. 458). This view is reinforced by Darity's argument that, given the political limits to the attainment of full employment discussed in Kalecki (1943), imperialism and external markets may prove an expedient politically acceptable strategy for dealing 'with crises of effective demand' (Darity, 1979–1980: p. 229).

## 18.5

Kalecki published his article on Tugan-Baranowski and Luxemburg in 1967. In 1968 he followed it up with an article, 'The Marxian equations of reproduction and modern economics', Kalecki (1968a), in which he drew on the arguments of his preceding article and related his take on modern steady-state growth theory emanating from Harrod's and Domar's seminal contributions to discussions of Marxian schemes of reproduction.

On his interpretation, (the then) modern growth theory often did a Tugan-Baranowski, that is to say, argued that there was no problem of effective demand to be faced in the long-run development of capitalism. (Such a delusion has been sustained, but even more so, in modern endogenous growth theory. The following quote from Robert Lucas illustrates this well: 'The balanced growth path will be a good approximation to any actual path "most of the time" [ ... ] exactly the reason why the balanced path is interesting to us', Lucas, 1988: p. 11). Kalecki argued that in arriving at this finding the authors concerned had been hoodwinked by the impact of expenditure on armaments and investment expenditure embodying technical progress in the temporary solution of Luxemburg's problem into believing that full employment growth was an inevitable outcome. That is to say, they produced the same argument that 'Jean Baptiste' Kaldor had concerning the assumption of full employment in his many growth models of the 1950s and 1960s.

Kalecki torpedoed whatever merit could be found in these conclusions with a judicious quote from Marx's third volume concerning the realisation problem: 'The conditions of direct exploitation and those of the realisation of surplus-value are not identical. They are separated not only by time and space but logically as well. The former are limited merely by the productive capacity of society, the latter by the proportions of various branches of production and by consumer power in society' (quoted in Kalecki, 1968a: p. 465). Kalecki notes that Marx has not 'systematically [scrutinized] the process described by [Marx's] reproduction schemes from the point of view of the contradictions inherent in capitalism as a result of the problem of effective demand' (Kalecki, 1968a: p. 465). Luxemburg's 'definite and even extreme' views were meant to tackle this. These elements of this analysis achieved their finest hour in Don Harris's diagram, which is a synthesis of Marx's spheres of production and distribution and exchange in which the latter takes in the Cambridge saving equation and the 'animal spirits' function derived from Keynes, as set out in Joan Robinson's banana diagram (see Harris, 1975; Robinson, 1962: p. 48).

In his diagram Harris shows that the potential surplus available at a point in time is determined in the sphere of production by the current state of class war, which sets the wage-earners' share of the potential national product, and the current state of techniques of production embodied in the capital stock, which determines total potential production. What proportion of the potential surplus is realised by activity in the sphere of distribution and exchange depends upon the overall level of effective demand. It is determined by the equality of planned accumulation (which Joan Robinson dubbed the 'animal spirits' function, revealing the relationship between the expected rate of profits and planned accumulation) with planned saving. The latter is influenced, in turn, by the distribution of income as well as the level and rate of growth of income, because of different values of the marginal propensity to save by profit-receivers and wage-earners. This Cambridge saving function thus relates actual profits received to actual accumulation occurring, taking into account the current environment concerning the provision of external finance.

## 18.6

Joan Robinson's 1951 Introduction to Rosa Luxemburg's book tells essentially the same story as Kalecki does, albeit in much more detail, as she develops her analysis with many references to Luxemburg's text for the ingredients she discusses. She draws attention to limitations in Luxemburg's analysis, for example, that Luxemburg neglects the rise in real wages that occurs as capitalism develops (until now in the USA and Europe) and denies – perhaps 'ignores' is a better word – the role of technical progress in inducing investment, so that '[s]he is left with only one influence (economic

imperialism) to account for continuous capital accumulation' (Robinson, 1951: p. 28). Nevertheless, Joan Robinson's final evaluation is that 'For all its confusions and exaggerations, this book shows more prescience than any orthodox contemporary could claim' (Robinson, 1951: p. 28).

Joan Robinson's reading of Rosa Luxemburg is similar to her reading of Marx: she wished to extract what she thought was their purely analytical, logical structure from the complex interrelated organic make-up of both Marx's and Luxemburg's systems. When Joan Robinson was writing her essay on Marxian economics, published in 1942, she had a voluminous correspondence with Maurice Dobb on the drafts. Dobb repeatedly attempted to point out to her the illegality of what she was trying to do as far as Marx was concerned, but she never took this on board, or indeed understood his patient attempts to persuade her of this point of view; for a full discussion of their exchanges and the points at issue see Harcourt and Kerr (2009: pp. 34–45).<sup>5</sup> She was still unconvinced when she wrote the Introduction to Rosa Luxemburg's book, that is to say, she was still primarily concerned about finding the 'Keynesian' element (Robinson, 1960: p. vii) in both authors.

## 18.7

Kalecki always argued that accumulation was the most vital factor in determining how capitalism develops over the decades. He put forward increasingly sophisticated and insightful theories of investment decision making and implementation – what he called 'the *pièce de résistance* of economics' (Kalecki, 1968b: p. 435, emphasis in original) – but he was never satisfied with his theories. His last version is in his 1968 *Economic Journal* article. Very early on he had also recognised the key role which sources of finance play in imposing the ultimate constraints on how much investment can actually be realised when other relevant factors have been taken into account. But perhaps even more important is that the 1968 article contains his major methodological conclusion that the trend and cycle are indissolubly mixed, that the trend is but a statistical outcome of the factors responsible for accumulation and the cycle, resulting in a theory of cyclical growth similar to Richard Goodwin's many seminal articles on this theme (see Harcourt, 2012). The key quote is: 'In fact, the long-run trend is only a slowly changing component of a chain of short-period situations; it has no independent entity' (Kalecki, 1968b: p. 435).

With this decisive argument, Kalecki has removed a major problem that still bugs modern mainstream analysis – the incoherence of the mainstream's understanding of the supposed medium term between their analysis of the short run and the long run, with the factors determining the last two being regarded as independent of one another. With Kalecki's and Goodwin's (also Joan Robinson's) insight, this becomes a non-existent problem. We conjecture that it was Kalecki's criticism of the then modern theories of growth

emanating from Harrod, Domar and the post-Keynesian and neoclassical responses to them, that produced his final and definitive stance, alas, only two years before his death in 1970.

## Notes

1. Our understanding of them has been greatly influenced by Claudio Sardoni's definitive article on them (Sardoni, 1981).
2. For example, Desai (1974: pp. 85–86) makes this error when discussing Luxemburg's critique of Marx; see also Desai and Veneziani (2009).
3. Foremost amongst modern economists who made this mistake was the late Paul Samuelson; see Harcourt (2006: p. 136), for evidence of this in Samuelson's articles on Marx and in various editions of his textbook.
4. He also referred to government expenditure as 'domestic exports' (Darity, 1979–1980: p. 224).
5. The argument in Harcourt and Kerr (2009) is based on Prue's thorough research in the archives.

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# 19

## The Contemporary Significance of Baran and Sweezy's Notion of Monopolistic Capitalism

*Joseph Halevi*

### 19.1 An Overview

This essay will discuss the main contributions of Paul Baran, Paul Sweezy, and Harry Magdoff in the light of, and in relation to, modern macroeconomic analysis. The focus of the paper is therefore on their interpretations of the dynamics of capitalism. These interpretations, while using concepts which can be found in the main body of macroeconomic theory, are cast in an altogether different framework. The extensive use these authors make of Keynesian notions is not aimed at identifying full-employment conditions consistent with equilibrium in the product market, labor market, and money market so as then to proceed to derive the right mix of fiscal and monetary policies. The *fragestellung* of the *Monthly Review* group does not allow for the transformation of economic concepts into a set of levers to tinker with, in order to achieve results defined independently of the *modus operandi* of the economic system under scrutiny. If we were to limit ourselves to “tinkering theory,” there would be no room for contributions like those of the authors we have elected to discuss. Indeed, a Marxist would have nothing to add, for instance, to Frank Hahn’s critique of Monetarism based exclusively on the obvious observation that monetarists arbitrarily extend to the “real world” the postulates of General Equilibrium and omit the very restrictive conditions by which competitive equilibria can be obtained (Hahn, 1980; 1981).

The description and the analysis of the *modus operandi* of contemporary capitalism prior to any policy considerations is at the center of the works of Baran, Magdoff, and Sweezy. The emphasis that in recent times the editors of *Monthly Review* (Magdoff and Sweezy) have been putting on Keynes as a critic of capitalism derives from the view that in Keynes there exists a relationship between the absence in a capitalist economy of a built-in tendency

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Revised from *Money and Macro Policy*, 109–133, 1985, ‘The Contemporary Significance of Baran and Sweezy’s Notion of Monopolistic Capitalism’, by Halevi, J. With kind permission from Palgrave Macmillan. All rights reserved.

to full employment and the need for radical social reforms necessary to maintain full employment. According to the editors of *Monthly Review* (MR), many Keynesians vulgarized Keynes's work "to the point of turning Keynesianism into a cure-all for the capitalist business cycle"; yet contrary to the establishment economists, Keynes "knew that there were real and deadly serious problems to be dealt with and he was not afraid to tackle them" (MR, 1983a, p. 11).

Magdoff's and Sweezy's reference to Keynes's willingness to contemplate far-reaching reforms aimed at the elimination of incomes out of capital and wealth concerns the last chapter of the *General Theory*, which deals with the social philosophy influencing the work itself. To this chapter, one should add chapter 16, where Keynes discusses the question of how it would be impossible to maintain full employment in a mature economy with abundant capital goods, unless conditions were created for investment to be carried out even at an almost zero rate of profit (marginal efficiency). The obliteration of the rentier capitalist is seen, in chapter 16, as a sine qua non for obtaining a monetary economy in which the rate of interest could be set so low, if not at negative values, as to compel capitalists to undertake investment activities at a minimal rate of profit.<sup>1</sup> It can be safely argued that in Keynes's view the transition to a world without finance capital involves a gradual process of changes in class relations in the material as well as intellectual sphere—changes bound to affect the long-run development of the system. These are problems that cannot become the subjects of technocratic exercises in a static framework.

Magdoff and Sweezy make the point that "Keynes's great achievement was now seen not as a highly original contribution to the understanding of capitalism's basic modus operandi but as the invention of a set of clever recipes to counteract the ups and downs of the business cycle" (MR, 1983a, p. 7). To strengthen their point let us mention a paper by Tobin and Brainard which, on its face value, comes close to the analysis developed in chapter 16 of the *General Theory* (Tobin and Brainard, 1963). Using a static neoclassical model, where in equilibrium the rate of return on capital is equal to its marginal productivity, Tobin and Brainard put forward the view that monetary controls which lower the rate of return on capital are expansionary, while those raising it are deflationary. A list of possible regimes accompanies the given proposition. Any reader of the paper is immediately led to think that what matters is the appropriate recipe and not what might cause enterprise to become—to use Keynes's words—"the bubble on a whirlpool of speculation." Nor is the reader induced to ask any questions as to whether and why in a laissez-faire capitalist system, liquid investment markets have a strong tendency to arise. This liquidity of investment markets is in Keynes strongly associated with a system of ownership relations in which ways to hold savings other than for the purchase of investment goods are open to wealthowners. Only if markets are so organized as to make capital assets

easily transformable into money, can the prospect of purchasing a capital asset (capital goods) be rendered attractive vis-à-vis the alternative ways (hoarding and/or lending). In short, casting analytical arguments in terms of policy options has the effect of erasing the critical approach contained in the *General Theory* and of rendering irrelevant all the arguments about the elimination of income out of accumulated wealth and about the logical necessity of the socialization of investment.

The role ascribed to Keynes of a critical bourgeois thinker, or of a disinterested inquirer, by the editors of *MR* precludes any reconciliation with the textbook version of Keynesian economics. In a very concrete sense the Marxian foundations of the *MR* approach help understand the issues raised by Keynes. One important aspect of their approach is their emphasis on the distinction between the factors governing the demand for real capital from the supply of money capital. In the writings of Magdoff and Sweezy are to be found a conceptual and factual criticism of the view, so common among American economists, that the stagnationist tendencies of the last decade are due to a low saving ratio and, consequently, to a shortage of capital (Magdoff and Sweezy, 1977, pp. 91–110; Magdoff and Sweezy, 1981, ch. 18).

Their critique combines Marx's distinction between money capital and commodity capital with Keynes's causation whereby investment determines saving. Money capital, they argue, can be plentiful (the interest rate being very low), and investment demand can at the same time be extremely low. As history has shown, this was the case of the Depression and stagnation of the 1930s, when from the standpoint of capitalist finance there was no shortage of money capital but there were no significant investment opportunities in sight. By the same token growing unused capacity is not incompatible with shortage of money capital represented by relatively high interest rates. Both phenomena have nothing to do with the level of saving. Idle plant and machinery mean that investment can expand only if effective demand, at any given interest rate, increases sufficiently to reactivate a significant proportion of unutilized equipment. The expansion of investment will automatically generate the necessary saving. But the possibility of cheap money capital in a prolonged depression and of dear money capital amidst growing stagnation reflect the evolution of the contradictory relation between real capital accumulation and capitalist finance. Hence a quick collapse of the level of effective demand, accompanied by a price deflation as was the case in 1929–1932, is likely to produce a cheap money situation of the kind envisaged by Marx in the third volume of *Capital*. By contrast, a progressive slide into stagnation, in which it becomes possible to attempt to maintain the flow of profits by means of inflation and debt expansion, is likely to produce the opposite result.

The longer-view approach taken by Baran, Sweezy, and Magdoff compels application of analytical thinking to a concrete subject matter: the historical development of capitalism. In this context, then, the authors' basic acceptance

of Keynes's point that, in general, investment is not at the level necessary to employ existing productive forces, is absorbed into a framework in which the increasing difficulties in finding investment outlets are linked to the stagnationist orientation of monopolistic capitalism. Moreover, the consolidation of monopoly capital is not seen independently of the role of public expenditure (Baran, 1973), nor is it seen separately from the multiplication of financial instruments and institutions, which, far from being viewed as factors increasing the allocative efficiency of financial markets, are considered conducive to the formation of liquid investment markets, which make "the capital development of a country [to become] the by-product of the activities of a casino ..." (Keynes, 1936, p. 159).

In the Baran-Sweezy-Magdoff conception, monopoly capital signals that stage of development where capitalism, once progressive, has become retrograde due to its immanent inability to realize the potential surplus output of the economy. Hence the growing tendencies towards unproductive, but not necessarily socially useful, activities, including the hypertrophic development of the financial superstructure. These are forms and an expression of the slackening of accumulation which enters in contradiction with the valorization of capital. Analytically we are no longer on Keynes's plane but, rather, on the line of inquiry followed by Michał Kalecki and Josef Steindl. It was Kalecki who pointed out that excess capacity is a dominant feature of oligopolistic economies. Steindl, while proceeding from Kalecki, has in turn argued that the long-run decline in capital accumulation in the United States, which eventually materialized in the Great Depression, stemmed from the strengthening of profit margins at the turn of the century, a period regarded as the beginning of what Schumpeter called Trustified Capitalism<sup>2</sup> (Steindl, 1976). Perhaps one of the most interesting, albeit neglected, observations made by Steindl concerns the relation between the effect of oligopolies on accumulation and the rise of joint stock finance. The problem as discussed by Steindl will be analysed in a later section of this paper. It suffices to remark here that Steindl's theme is central to the argument of *MR* aimed at showing how continuing stagnation fuels the multiplication of financial instruments.

When monopoly capital is seen as the core of the capitalist economy and when the core is (correctly) viewed as constituted by conglomerates, which are fundamentally financial and not production units (Magdoff and Sweezy, 1972, pp. 113–48), there is absolutely no room for the enlightened reformism advocated by Keynes. The financier cannot be separated from the industrialist because these terms do not define individuals but socio-economic categories which today find their point of unity in the monopolistic conglomerate. Thus, while the *MR* position retains Keynes's analysis of the link between effective demand and investment, as well as the view that a monetary economy which enhances income out of capital and wealth is in the long run incapable of avoiding misery amongst plenty, the same

position sees the roots of the contradictions of modern capitalism in the impact of monopolistic formations on the accumulation of capital.

From what has been said above, it emerges that the contributions of Baran, Sweezy, and Magdoff take up the issues raised by Marxist thinkers at the turn of the century. A comparison between the *MR* group and this debate is therefore necessary in order to show the analytical differences between accumulation in a monopolistic economy and in a competitive economy, such as that studied by Marx.

## 19.2 Classical Marxism and the *MR* Group

The Marxist debate at the turn of the century focused on questions concerning the long-run development or breakdown of the capitalist system and the impact of the rise of trusts and cartels.<sup>3</sup> In both cases Marx's schemes of reproduction were used in their macroeconomic dimension, that is, as an analytical framework for hypotheses about the actual tendencies of capitalistic accumulation. The breakdown controversy has, in my opinion, only historical value because of its deterministic character. More specifically, the attempt to show on the basis of Marx's schemes that the system can be subject to steady accumulation or to economic collapse anticipates by more than 50 years the discussion about the instability or stability of growth models. The difference lies in the fact that in the Marxian debate, the object was the actual process of accumulation, whereas in growth models the object is purely represented by the properties of the models. As Kalecki once remarked, a curious division of labor has taken place in the west: on one hand, the government was trusted to balance demand and capacity in the short run, while on the other, economists would concentrate on steady-growth theory, in which the problem of effective demand and the formation of long-run bottlenecks were assumed away (Kalecki, 1970). The debate over the question of breakdown versus growth remained, however, on deterministic grounds because many participants tried to infer conclusions about the actual tendencies of accumulation using numerical extrapolations of Marx's schemes of expanded reproduction. By contrast, a nondeterministic approach was taken by Lenin, Rosa Luxemburg, and also to some extent by Rudolf Hilferding. These thinkers did not try to interpret the possible tendencies of the capitalist system by mechanical manipulations of the reproduction schemes. Instead, they attempted to identify the historical configurations to which capitalistic accumulation might lead. The works of Baran, Sweezy, and Magdoff have to be related especially to this second group of Marxists.

For the purpose of our paper the analysis will be confined to Hilferding and Luxemburg. In his book, *Das Finanzkapital* (1910), Hilferding saw the source of crises in the disproportionalities arising between different branches of production and not in the emergence of general overproduction. Basing his analysis very much on the German phenomenon of the mixed banks,

banks which acted not only as lending institutions but also as managers and controllers of industrial activities, Hilferding viewed economic activity as governed by cartels. The creation of cartels he argued, had a twofold effect on the dynamics of capitalism: on one hand it sharpened economic conflicts, while at the same time it led to a regulation of production.

The formation of cartels in different countries would produce a struggle within each country leading towards the consolidation of one general cartel. Social tensions and class conflicts would, in this view, arise from the economic struggle between different cartels. Hilferding also described in great detail how competition between different cartels could lead to a global military confrontation among capitalist countries. The possibility of a socialist revolution was seen by Hilferding to exist objectively in the class conflicts generated by the economic and eventually military wars caused by cartelization. Although cartels during their formative phase give rise to acute class conflicts, Hilferding thought that a fully cartelized economy would be more stable than a competitive one, a position shared also by Schumpeter (1928). In Hilferding's work there are many interesting observations which foreshadow much of the themes developed by non-Marxist economists after World War II. In particular, he pointed out that the cartel's ability to regulate production makes the effects of a crisis to be felt especially by the independent competitive producers, thereby furthering the concentration of capital. A similar argument was put forward by John Kenneth Galbraith some 47 years later (Galbraith, 1957). Moreover, the concentration of banks which accompanies cartelization is bound to lead to a growing endogenization of money. Concentration of banks and their integration with industrial capital would eliminate, according to Hilferding, the need for commercial credit in favor of bank credit. The process of credit creation would be entirely under the control of banks. Gold, he argued, would be used only for international transactions. The endogenous creation of means of payments would therefore enable the regulation of credit itself, making financial crises more unlikely. While Hilferding considered the process towards full cartelization to be fraught with titanic clashes between cartels and thus unleashing formidable class conflicts, the theoretical thrust of his argument is that cartelization brings about a regulation of production and credit. During the years of the Weimar republic, Hilferding, who was to be killed by the Nazis, pushed this theoretical position to its extreme limit, virtually negating the possibility of crises (Hilferding, 1924).<sup>4</sup>

Hilferding's and Schumpeter's misconceptions about the alleged regulated stability of Trustified Capitalism lie in the fact that both looked at the concentration of capital through the prism of absolute monopoly while neglecting oligopolies altogether. In this way they waste the important point that in the advanced stage of capitalistic development, money is endogenously created. In fact the connection between endogenous money and the development of modern capitalism should be seen as an expression of the



capitalist system becoming increasingly demand-determined and not as an expression of its self-regulating power. No such misconceptions arise in Baran, Magdoff, and Sweezy because their basic unit, the large corporation, is of an oligopolistic kind; this enables them to tie monopoly capital to the issue of the realization of the surplus discussed by Luxemburg (1968). The Baran-Sweezy book, *Monopoly Capital* (1970), sketches out the working of oligopolistic firms in a way which is by and large consistent with the more detailed analysis of Sylos-Labini's *Oligopoly and Technical Progress* (1969). I will start from what I think are the main points made in the second book.

The profit margins obtained in oligopolistic industries result from a pricing process in which the size of the market plays a far more important role than the elasticity of demand. The main reason for this is that oligopolies arise out of technological discontinuities and indivisibilities in production. These indivisibilities prevent oligopolistic firms from conquering the entire space of the competitive units. It follows, then, that oligopolies are not really interested in absolute monopolization, and this means that the elasticity of demand is not relevant, either. Oligopolies face, so to speak, a finite demand in a dynamic sense; structural discontinuities do not allow for the expansion of investment unless the market has grown sufficiently to justify the construction of new plants of a technologically determined size. We can see that the importance of oligopoly theory for a Marxist understanding of modern capitalism is deeper than many Marxists think. It outlines the structural outcomes of the process envisaged by Marx when he spoke of the rise of joint stock companies.<sup>5</sup> But the consolidation of oligopolistic formations changes the dynamics of accumulation itself. Perhaps the line of inquiry should no longer center on the issue of growth and crisis, but rather on stagnation, decline, and the possible limits of counteracting tendencies not just in the economic but also in the institutional sphere.

Oligopoly theory, especially the Sylos-Labini version of it, connects the forces of stagnation with the discontinuities of large-scale production. By discontinuity it is meant here that only firms of a certain size can install the fixed capital embodying production techniques necessary to obtain scale economies. Concentration creates the conditions for large firms to arise, and a structural discontinuity emerges because smaller firms are not in a position to undertake the required capital investment. Fixed capital appears therefore as a strategic factor in a concentrated economy, a control variable which determines also the nature of technical change. The theory also postulates that in the absence of an increase in effective demand greater than the increase in the total costs which would be brought about by the given size of new fixed capital, oligopolistic firms will tend to introduce innovations aimed at lowering variable costs, especially labor costs. The labor-saving bias of innovations is also linked to the role of fixed capital and unused capacity as a barrier to entry and as a weapon of deterrence against other oligopolists (Spence, 1977). Although wage increases following a rise in

productivity will counterbalance the decline in employment as far as the demand for consumption goods is concerned, the economy will still move towards stagnation and decline, albeit at a lower speed. For if unemployment rises over time, the bargaining power of workers is likely to decline; wages will no longer move apace with productivity which, under oligopoly, means that profit margins will rise. At this point Steindl's link between higher profit margins and lower accumulation rates caused by, and leading to, a lower degree of capacity utilization comes into being and stagnation cum decline sets in.<sup>6</sup>

The observations about oligopolies and innovations made so far help eliminate some ambiguities contained in *Monopoly Capital* (Baran and Sweezy, 1970). In order to show that the oligopolistic corporation generates a weaker inducement to introduce innovations, thereby reducing the scope of investment opportunities, Baran and Sweezy refer to a point made by Joan Robinson that for innovations to occur under noncompetitive conditions, the rate of interest must be very low indeed (Robinson, 1956, p. 407). The problem is that in Joan Robinson's framework, and in particular in her *Accumulation of Capital* (1956), there is virtually no room for an analysis of the relation between concentrated oligopoly and production indivisibilities. By contrast, Sylos-Labini, following an argument put forward by Oskar Lange (Lange, 1944) shows that innovations also take place under oligopolistic conditions, but are likely to be of a labor-saving kind, thus accentuating rather than mitigating the tendency towards stagnation. Under these circumstances, the role of the rate of interest is of secondary importance and in fact becomes problematical altogether.

Baran observed that under mature capitalism the task faced by managers and policymakers "would not be slow adjustments to small changes—the main prerequisite for the applicability of the rules derived from static analysis—but choice among few technological alternatives involving large indivisibilities and 'fixed coefficients.'" (Baran, 1969, p. 147). This view, in an oligopolistic context, means that investment will be made only if the expansion of demand is large enough to enable the firm to overcome the increase in total costs connected with the indivisibilities cited. Hence if in a normal situation the rate of interest is reduced to very low levels, as Joan Robinson maintains, it will not change the labor-saving character of innovations. On the contrary, it should enhance that character. The role of the rate of interest in relation to investment becomes even more ambiguous if one considers two additional factors which are specific to the oligopolistic stage of capitalism: 1.) self-financing in the oligopolistic firms and reliance on bank loans in the competitive ones; and 2.) the form of allocation of profits.

The rate of interest, and therefore the policy of the central bank, primarily affects the borrowing of small firms. By contrast, the larger self-financing capabilities of big corporations create the structural conditions for capital markets to become imperfect. The potential ability to self-finance can be

used to obtain loans on a preferential basis so as to maintain the desired degree of liquidity, thereby reducing the impact of what Kalecki called the principle of increasing risk (Kalecki, 1937).<sup>7</sup> From the viewpoint of the social economy, the investment and borrowing activities of the corporate sector have to be judged in relation to whether they expand employment or not. It is here that link between oligopolies and indivisibilites comes back in full force. If demand does not expand by the required amount, oligopolies can use their undistributed profits so as to 1.) invest in the stagnationist sense described above, 2.) become net lenders, 3.) acquire assets in the stock and bond markets. All these activities can be beneficial and necessary from the vantage point of the corporation, but they are not where the social economy is concerned.

The contradiction between declining real investment opportunities and expanding of financial investments has been one of the main arguments put forward by the *MR* group in recent years (*MR*, 1982, 1983). The weakness of investment activity is analysed in terms consistent with the stagnationist approach of oligopoly theory. But the argument about the growth of the financial sector is tied to the relationship between stagnation, inflation, and indebtedness. This raises a number of analytical problems, although the problems do not invalidate the way in which Magdoff and Sweezy present the issue. The point is that from the connection between oligopoly and stagnation, it is possible to derive a preference for financial over real investment.<sup>8</sup> It is also possible to derive a relation between oligopoly and the rise of the inflationary floor, and derive it mainly via the nonsymmetrical working of prices—raw material and food prices, as well as those of the competitive firms, tend to rise when demand increases, but oligopolies' prices do not fall when demand declines. It is, however, extremely difficult to build a consistent framework showing the interaction of these three phenomena. A partial indication of the possible transition to a state of indebtedness comes from Steindl's analysis of rentier savings generated within the corporate structure. This will be discussed in the fourth section.

In the context of the argument presented here, the main achievement of the works by Baran, Sweezy, and Magdoff must be seen in their having carried the Marxist themes of the long-run tendencies of capitalistic accumulation into the contemporary setting of oligopolistic capitalism. The causal relations between the productive and financial aspects of the system have yet to be worked out, which means that it is necessary to grasp the *differentia specifica* of accumulation under oligopolistic conditions vis-à-vis accumulation under competitive capitalism.

### **19.3 Competition, Monopoly Capital, and Structural Maturity**

In two remarkable essays on monopoly and competition from a Marxist perspective, Sweezy (1972; 1981) made the following points: 1.) with monopoly

capital the notion of a general rate of profits loses its significance—a hierarchy of profit rates sets in instead; and 2.) the extraction of surplus value is common to both competitive and monopolistic capitalism, although with the latter the form of realization of surplus value changes in a substantial way—on one hand, monopolistic corporations must take care of not spoiling the market; on the other hand, the larger volume of profits allows them a more rapid expansion via direct investment and easier financing.<sup>9</sup> The main contradiction becomes that of the increased ability to expand versus the more constrained scope for actual expansion (Sweezy, 1972; Levine, 1975).

Two important observations follow from the above. First, the problem of effective demand is far more significant under oligopolistic conditions than under competition. This does not mean that the realization of the surplus produced is impeded by underconsumption. The MR group, and Sweezy in particular, view the consolidation of monopolistic capitalism in a context of structural maturity, i.e., in a situation where the productive capacity of the capital goods sector is such that the investment priority should no longer be directed toward the formation of the capital goods industry (Sweezy, 1968b). This means also that the employment capacity (at near-full utilization) of existing capital stock and of related services suffices more or less to absorb the bulk, if not all, of the labor force (Kalecki, 1976). In the terminology used by Kaldor, we could say that structural maturity defines a situation in which labor and not capital is the potentially scarce factor, whereas in terms of Keynes's argument outlined in Chapter 16 of the *General Theory*, we would say that abundance of capital goods (which, when achieved, implies little or no income out of capital and wealth) is within a reasonable reach. Hence the basic disease of monopoly capital lies not in crude underconsumption but in a situation where "at anything approaching full employment the surplus accruing to the propertied classes is far more than they can profitably invest." (Magdoff and Sweezy, 1981, p. 148). The key expression here is "anything approaching full employment," which means that full capacity output roughly coincides with full employment.

Second, crises no longer perform the role of solving the contradictions of capitalistic accumulation, because their function for restoring the rate of profits and the rate of accumulation is greatly weakened; this is why stagnation acquires significance. To understand this point we must discuss the question of unused capacity, since it is via the degree of utilization of equipment that the impact of monopoly capital on accumulation and on the role of unemployment (or the reserve army) shows itself most clearly.

In the works of Kalecki and Steindl, unused capacity is the norm under oligopoly. But idle plant and equipment appeared also during the competitive phase of capitalism, especially during crises. By competitive phase we do not refer to static perfect competition but to the Marxian and classical notion of competition which allows for the periodic formation of unemployed resources, labor in particular. The primary characteristic of Marxian

competition is that there are no major barriers to entry and exit. Hence capital stock and investment do not perform any relevant function of protection of profit margins. A corollary of this notion is that capitalists cannot influence market prices which are instead determined by supply and demand, a view very strongly and correctly maintained by Marx (1968a) in his famous *Wages, Price, and Profits*. Because there are no barriers to entry, those capitalists who have adopted a superior method of production enjoy only temporary exceptional gains which must, however, be invested as much as possible precisely because market positions cannot be defended by any other means. In Marx's words, competition "compels him [the capitalist] to keep constantly extending his capital in order to preserve it, but preserve it he cannot except by means of progressive accumulation" (Marx, 1974, I, p. 555).

The appearance of unused capacity during the competitive phase of capitalism goes hand-in-hand with the drastic fall in prices which accompanies every downturn of the cycle; a completely opposite situation characterizes excess capacity under oligopoly. Indeed idle capital equipment and decline in price signals bankruptcies and business failures. To avoid failure, capitalists try to sell as much as they can to meet financial obligations. Since they do not influence prices, they cannot administer supply either and are compelled to sell even at a loss; "these forced sales play a very significant role in the crisis" (Marx, 1968b, p. 503). This financial aspect of the crisis highlights its competitive character, which affects also the movements in interest rates (Sylos-Labini, 1983b). Producers, in order to stave off bankruptcies, sell goods against cash and also attempt to borrow money to pay debts. Hence: "The rate of interest reaches its peak during crises, where money is wanted at any cost to meet payments" (Marx, 1974, III, p. 361).<sup>10</sup>

Under Marxian competition, excess capacity does not have the same macroeconomic effect as under oligopoly; idle equipment in conjunction with a fall in prices implies exit from the most-affected industries, entry in the relatively less-affected ones, and with the generalization of the crisis, the destruction of capital. However, when barriers to entry and exit exist, the mechanism, as pointed out by Steindl, works differently; the undesired amount of unused capacity can be eliminated by not replacing part of the equipment which wears out—a type of adjustment which is bound to reflect itself on the demand of capital goods and thus on aggregate investment demand. We obtain therefore the following picture: investment under oligopoly is also made with the aim of strengthening entry barriers by deliberately building excess capacity; this however creates the conditions for an adjustment mechanism which, when undesired excess capacity emerges, negatively affects aggregate investment demand, thereby perpetuating unwanted spare capacity.<sup>11</sup>

Baran, in his *Political Economy of Growth* (1973), fully captured the novel dimension of investment as compared to competitive capitalism. He also noted that corporations' ability to control capital stock is an improvement

which enters into conflict with the private form of investment, viewed in an oligopolistic economy as demand determined:

“In terms of a rational husbandry of society’s resources, the capital-preservation policy of the monopolistic firm may be frequently preferable to the excess investment and the destruction of capital that take place under competitive conditions. Yet, as is often the case under capitalism, such advance in rationality as is achieved is perverted into its opposite if the monopolistic capital-preservation policy contributes to a shrinkage of investment opportunities and leads to a reduction of output, income and employment” (Baran, 1973, p. 200, n. 67).

In *Monopoly Capital* (Baran and Sweezy, 1970), the same point is reiterated in a manner which implicitly raises the question of whether or not unemployment plays the same role as in Marx’s analysis of the reserve army. This is a very important question because, for Marx, the reserve army of labor is functionally related to accumulation; it helps restore the rate of profits and the rate of growth via the reduction in wage rates caused by competition between workers.<sup>12</sup> Thus, if unemployment no longer plays that role, we should ask ourselves what happened to the forces of accumulation.

Let us quote from *Monopoly Capital*, “In the older theories—and here we include Marxian as well as classical and neoclassical economics—it was normally taken for granted that the economy was operating its plant and equipment at full capacity....” (Baran and Sweezy, 1970, p. 145). The link between a full-capacity economy and unemployment is expressed as follows:

“In the Marxian theory, unemployment (the ‘industrial reserve army’ or ‘relative surplus population’) was assumed to be normal and to play a key role in regulating the wage rate. In the absence of idle plant and equipment, however, the unemployed could not be put to work to produce additional surplus” (Baran and Sweezy, 1970, p. 145).

By contrast, under monopoly capital:

“Here the normal condition is less than capacity production. The system simply does not generate enough ‘effective demand’ (to use the Keynesian term) to ensure full utilisation of either labour or productive facilities” (Baran and Sweezy, 1970, p. 146).

On the basis of our previous discussion, the Baran-Sweezy position can be summarized in the following terms: Under competitive capitalism it is impossible to hold onto excess capacity because the fall in prices will cause a stream of exits and economy-wide bankruptcies; unemployment will cause,

in turn, a decline in wages, creating the conditions for a recovery in the rate of profits and accumulation.

Now, if this situation does not obtain in an oligopolistic economy then the relationship between the growth of output and the share of profits, and between the rate of profits and the share of profits must be different from that hypothesized in a Marx-Goodwin framework of competitive capitalism. Indeed the model put forward by Richard Goodwin captures the essence of Marx's notion of cyclical accumulation, since in this model the share and the rate of profits move in the same direction, and unemployment helps restoring the rate of accumulation (Goodwin, 1969). At this juncture, Kalecki's definition of the share of profit as expressing the degree of monopoly becomes very useful, because it is valid only if unused capacity exists. To put the matter succinctly, Kalecki's degree of monopoly reflects the distributional factors composed by entry barriers and the like. It represents, so to speak, the balance of forces of oligopolistic powers. Unused capacity becomes a structural connotation of the system. In this context the share of profit is negatively related to the degree of utilization of equipment, to the growth rate, and to the rate of profits. (See appendix for a formal derivation.) If the rate of capacity utilization were equal to unity, the above negative derivatives would turn out to be positive; that is, share of profit, rate of profits, and rate of growth would rise or fall together as in the Marxian full capacity economy. We have come now to what we believe to be the most important implication of the Kalecki-Steindl-Baran-Sweezy interpretations of contemporary capitalism.

If an increase in the degree of monopoly (share of profit) leads to a reduction in the rate of utilization and in the rate of growth then, *ceteris paribus*, unemployment will increase. The rise in unemployment, by weakening the labor organizations, may subsequently cause wages to grow less than productivity, which under oligopolistic conditions implies an increase in profit margins rather than a proportional fall in prices. The degree of monopoly will go up further, utilization rates and the growth of output will drop; unemployment will expand. Roughly similar results can be obtained even without postulating an initial increase in the degree of monopoly. Following a very intelligent paper by Del Monte (on which the appendix is based), we can assume that the actual degree of monopoly corresponds to a utilization rate generating a growth rate of output below that of the labor force and productivity (Del Monte, 1975). If wages grow along with productivity, the system keeps going on a steady state with a given degree of unused capacity. Unemployment, however, will expand. If unemployment has a negative effect on the dynamics of wages, we are back to the previous argument; the degree of monopoly and unused capacity will rise, and growth rates will fall. In all these cases the reserve army of labor moves more or less apace with reserve production capacity. Unemployment might regulate the wage rate and especially the wage productivity relation, only to make things worse.

It seems, therefore, that in an oligopolistic framework the relation between the reserve army of labor and accumulation is not as strong as in the Marxian case. Unemployment remains a product of capitalist relations; it stems from the stagnationist forces inherent in monopoly capitalism, but it loses any major objective function. Unemployment emerges basically as a social contradiction. Kalecki's view that under oligopolistic capitalism the role of trade unions is to push for a reduction in the mark-up in order to expand employment, therefore, is correct (Kalecki, 1971).<sup>13</sup>

Our thesis that present-day unemployment would not favor capital accumulation, even if it led to a fall in wages, is not unconnected with the other aspect of modern oligopolistic economies, namely, that of structural maturity.<sup>14</sup>

The Kaldorian concept of labor being the potentially scarce factor, a point which was introduced at the beginning of this section, is applicable to a historical context in which productive forces reached an advanced stage of development. In Marxian terms this means that the production of means of production, the main source of accumulation, can by far outpace the labor resources technically necessary to operate them.<sup>15</sup> Kaldor has aptly pointed out that labor-saving technical progress cannot be relied upon to ensure the right amount of labor supply:

“In order to prevent the emergence of excess capacity in equipment, the new ‘machines’ must be *so much* more labour-saving that the aggregate amount of labour required to work the newly installed equipment per unit of time, should be no greater than the amount of labour simultaneously ‘released’ through the disappearance of that part of old equipment which is worn out and has to be scrapped. This depends not only on the rate of technical progress, but also on the level of investment activity; and the condition will be all the less likely to be fulfilled the greater the aggregate amount of new equipment produced per unit of time” (Kaldor, 1960, pp. 114–15).

Although Sweezy does not tie industrial maturity to the scarcity of labor, his argument becomes clearer when cast in Kaldorian terms (Sweezy, 1968b). His observation that, when the capital goods sector has been fully built-up, economic activity should shift from the accumulators to the consumers becomes stronger when the productive capacity of means of production could turn labor into a scarce factor. But the attainment of this macroeconomic goal is, in the Baran-Sweezy framework, impeded by monopoly capital. Large-scale economies and production indivisibilities are the source of the potential productive power of the capitalist economy. At the same time, they also provide the structural foundations of oligopolistic capitalism. If entry barriers and the related price leadership contributed to the breakdown of the competitive Marxist process of accumulation, they would all the more



act against the shift that Sweezy rightly considered necessary. Such a change would run against the *raison d'être* of capitalism, which sees investment as propelling profits.

#### 19.4 Summary and Conclusions

In Baran and Sweezy the demarcation line is not between monetary and nonmonetary economies, but between capitalist and noncapitalist economic formations. Capitalism produces for profits. This is the monetary essence of the system, which in contemporary conditions is an oligopolistic one.

In Marxian terms, the relationship between monopoly capital and unused capacity generates a situation whereby a tendency of the surplus value to rise is not incompatible with a fall in the surplus value realized. This is the same thing as saying that, because of the effects of gross profit margins on utilization, a shift from wages to profits becomes in fact a shift from wages to wasted unused capacity. If we take the above perspective into consideration, we see that *MR's* editors interpret the financial transformations in post-World War II United States capitalism as new ways to absorb the surplus and, also, as finding means to realize profits through circulation, when the burden of unused capacity sets limits to the rate of accumulation and therefore to the link between investment and profits.

The last theme, i.e., realization through circulation, is a relatively recent one, stemming from the observation made in almost every economic editorial which appeared in *Monthly Review* in the last ten years, that the financial sector has witnessed an unprecedented expansion in spite of growing stagnation (*MR*, 1983b). On this basis the conceptual separation is not between the real and the monetary sides of the working of the economy but between the financial and the productive dimensions of capitalism. Indeed, while it is impossible to separate between real and monetary activities (with the exception of very crude forms of theorizing such as Monetarism), it is extremely valid to ask why and under what conditions financial activities can multiply and prosper amidst stagnation in output and investment.

Although the editors of *Monthly Review* do not give an analytical answer to the problem, they have the merit of raising a Marxian and Keynesian theme in a manner appropriate to contemporary issues. As mentioned in the first section of this paper, the possibility of holding savings in forms which are not conducive to the purchase of capital assets was regarded by Keynes as a major factor in the rise of liquid investment markets and in the volatility of investment itself. In chapter 16 of the *General Theory*, the argument is repeated in stronger terms—in a mature economy well-endowed with capital stock, the long-term stability of full employment can be achieved only if investment is carried out even at a near-zero marginal efficiency (or expected profitability) so as to make capital goods abundant and thereby

eliminating capital income. From a structural point of view, this line of reasoning is consistent with Sweezy's observations about the necessity of shifting the emphasis of economic activity from accumulators to consumers. At the same time, the multiplication of financial instruments can be viewed as expressing forces pushing the economy in an opposite direction to the normative conditions analyzed by Keynes in chapter 16.

Now, if we interpret the creation of an even wider variety of financial instruments as an expansion of the alternative ways in which savings can be held (other than the purchase of capital goods), then we must conclude that Sweezy and Magdoff are on more solid ground than Keynes, since in their approach the phenomenon is connected with the corporate structure of monopolistic capitalism, such as holding companies and the like. The Marxian theme lies, of course, in the rehabilitation of the notion that there are productive and unproductive sectors in the economy. The novelty vis-à-vis Marx is to be found in the argument that the emergence of unproductive activities is a result of a particular stage of capitalist development, a stage in which unused capacity is a chronic phenomenon setting limits to realizing profits through production.

The renewed emphasis on the relations between production and finance as embodying conflicting elements specific to the advanced stage of capitalism, is at present at the conjectural stage only, although this does not diminish the validity of the approach. The most noticeable shortcoming lies, in my opinion, in the absence of a set of clear hypotheses about the connection between oligopolistic structures, financial expansion, and stagflation. Magdoff and Sweezy are certainly correct in pointing out that the dynamism of the Financial sector has gathered momentum under stagnationist and inflationary conditions; but how are we to establish the causal relations? As a matter of fact, a theoretical interpretation of the rise of corporate finance has been developed by Steindl. He maintains that the consolidation of profit margins under oligopoly in the presence of a sizeable amount of income-inelastic savings (dividends and executives' salaries) would tend to hamper the accumulation of business capital. Joint stock finance becomes, therefore, the instrument by which finance can be obtained. Yet Steindl's analysis is entirely oriented toward the explanation of the factors weakening accumulation and engendering stagnation, and it does not link up with hypotheses about inflation. Since we believe that Magdoff's and Sweezy's decision to locate the phenomenon in the context of stagflation is of paramount importance, we suggest that the identification of consistent causal relations should become the subject of the theoretical research of those who appreciate the validity of the contribution of the *Monthly Review* group.

The writings of Baran, Sweezy, and Magdoff, integrated with the contribution of Kalecki, Steindl, and Sylos-Labini, represent the basic framework for an analysis of modern capitalism. Conceptualizing historical phenomena is never a fully self-contained process, and this is why gaps and shady areas are

bound to arise. Yet this is preferable to axiomatic theorizing where the laboratory of economics, i.e., history, disappears altogether. Their approach has the invaluable merit of preventing the transformation of economic theory into a set of technocratic exercises.

In this paper we have elected to put the question of structural maturity at the center of attention because it constitutes the point of convergence between Keynes, Sweezy, and Kalecki. In this context the oligopolistic basis of monopolistic capitalism highlights the crucial difference between accumulation and the reserve army of Marxian competition and excess capacity and unemployment during the age of monopoly capital.

## Notes

1. An attempt to introduce Keynes's view of the disappearance of the rentier capitalist in a Marxian-Kaleckian context is found in Halevi (1983).
2. Steindl also points out that in the boom of the 1920s accumulation actually declined in relation to pre-World War I years. It must be said, however, that the 1920s were a period of profit boom in the full sense of the word. Productivity increased far more than wages, and prices fell only slightly. The slowness in the formation of consumption demand, connected with a shift in income distribution in favor of profits, created favorable conditions for financial speculation. Schumpeter noted that in 1929 only one-fifth of total investment was for productive purposes while four-fifths went into financial activities. Sylos-Labini characterized the 1920s as a period of excessive profits linked to rising oligopolies and weakened unions (Schumpeter 1939; Sylos-Labini, 1981).
3. A discussion of the issues can be found in Sweezy's famous book, *The Theory of Capitalist Development* (Sweezy, 1968a); an excellent collection of the original texts appeared in Italy (Colletti and Napoleoni, 1970).
4. The Great Depression vanquished both Hilferding's and Schumpeter's views. The latter then thought that competitive forces were at work more than he had expected. Now, while it was Marx's great achievement to show that cycles and crises are necessary phenomena of competitive accumulation, it does not follow that when accumulation gives way to monopolistic formations, the capitalist economy becomes free of crises. The basic motors of capitalism, i.e., the valorization of capital and the use of money capital to generate additional money capital, remain untouched. What changes therefore is the form of crises, as will be argued in the next section. From this perspective the Great Depression can be interpreted as the first comprehensive manifestation of a crisis under oligopolistic conditions. We have already mentioned a study by Sylos-Labini (1981), where it is shown that the conditions for a collapse of accumulation must be found in the growth of oligopolistic power in the 1920s. Another study by the same author recently translated into English analyses the qualitative differences between the Depression of the 1870s and that of the 1930s. It is shown that in the United States in the 1873–1879 period, industrial output fell by 5 percent as against a fall in prices of 33 percent. In the 1929–1932 Depression, industrial output collapsed by 48 percent, but industry's prices fell by 23 percent (Sylos-Labini, 1983a). These findings are in line with those of the National Resource Committee's study in 1939. There it emerged that the decline in output hovered between 55 percent and 84 percent in oligopolized industries, such as cement, steel, agricultural

machinery, and autos. The corresponding decline in prices varied between 16 percent and 12 percent only. By contrast, in less concentrated sectors prices fell more sharply than output. The most interesting case is that of oil products, where the discovery of oil fields in Texas increased competition enormously; prices fell by 36 percent and output by 17 percent (National Resource Committee, 1939).

5. Marx's point about joint stock companies can be viewed as a financial prerequisite for the development of productive units of an oligopolistic kind. Without joint stock companies, capital accumulation would be limited, also in a technological sense, by the capital in possession of each unit.
6. One analytical advantage of looking at modern capitalism in terms of oligopoly theory is to be found in the fact that the possible increase in the propensity to save does not arise from any Keynesian psychological law. Indeed, what appears as an increase in that propensity is the result of objective oligopolistic forces. It is worth mentioning in this context Steindl's hypothesis about saving propensities. The tendency of profit margins to rise is compounded in Steindl by a new form of rentier savings, which are produced by the corporations themselves, i.e., savings out of managerial salaries and dividends, all of which are highly income inelastic.
7. In Kalecki, the principle of increasing risk is formulated in order to highlight the fact that the level of investment is determined by the different amounts in which capital is owned. In the 1937 paper, he assumed the marginal efficiency of capital and the rate of interest to be given and running parallel to each other. Investment is plotted on the abscissae; interest and risk are plotted on the ordinates. Without the risk factor, investment will be infinite, because the marginal efficiency curve never crosses the rate of interest. Moreover, risk generates an upward sloping curve which crosses the marginal efficiency curve at some point; this is an *ex ante* formulation and shows that investment is limited by the ownership of capital (Halevi, 1975).
8. As mentioned before, Schumpeter has pointed to the contradiction specified for the 1920s, and the same contradiction was reiterated in recent editorials in *Monthly Review*. During the 1960s, European economists considered the rise in the values of industrials in the U.S. stock exchanges in the second half of the 1950s as a sign of health, compared to the very limited role of European stock exchanges in meeting the financial requirements of European firms. Yet, if it is considered that in the United States self-financing played a dominant role and that between 1954 and 1961 the U.S. economy displayed a very strong stagnation tendency, then the rise of the values of industrials totally out of proportion with the growth of GDP should convey an altogether different message—namely, that new capital for real investment was giving way, because of stagnation to purely financial investment (Lamfalussy, 1968).
9. By relaxing the constraint on increasing risk.
10. Marx's concept of competition has been used as a description of nineteenth century's capitalism by Maurice Dobb. Also, Sylos-Labini viewed the importance of Marx's analysis as related to the actual competitive phase of capitalism (Dobb, 1973; Sylos-Labini, 1983b).
11. An excellent paper by Michael Spence has formally shown the nature of investment for the oligopolistic firm. Spence's results show that when investment is made with the purpose of creating barriers via excess capacity the firm is freed from limit pricing; that is, it does not have to get prices low enough to deter entry (Spence, 1977).

12. The best formalization is still that of Richard Goodwin. Capitalists accumulate as much as they can; there is no problem of effective demand. As the capitalists accumulate, unemployment dries up and wages rise up to a point where the share of profits and the rate of profits fall to a level in which the rate of accumulation cannot ensure the absorption of the natural increment of the labor force. Unemployment erodes existing wages, and the share as well as the rate of profits rise again. Goodwin's model is partly truthful to Marx's because it is based on the Harrod neutral technical progress, which was not the case in Marx. Yet it correctly represents the functional relation between the reserve army of labor and accumulation (Goodwin, 1969).
13. It is worth mentioning that in *Wages, Price and Profits* (1968), Marx opposed the view that wage increases would be met by an increase in prices, maintaining instead that they would affect the rate of accumulation by reducing the share and the rate of profits. Kalecki's well-known article, "Class Struggle and Distribution of National Income," is Marx's *Wages, Prices and Profits* under oligopolistic conditions—trade unions should struggle against oligopolistic profit margins in order to reduce the share of profits, which in turn will lead to an expansion of output and employment. See also appendix (Kalecki, 1971; Del Monte, 1975).
14. Two points need clarification here. First, will a fall in money wages, accompanied by a fall in prices, lead to a reduction in interest rates with a positive effect on investment, output, and employment? The sturdy theoretical realism of Kalecki provides us with the answer. For the above effect to happen, the fall in wages would have to be of a long-run nature and the supply of money should remain unchanged even in the face of a lower monetary volume of transaction. It is quite likely, however, that banking policy would adjust to the reduced amount of transactions (Kalecki, 1954). Second, oligopolistic industries exist also in nonmature economies. But here excess capacity does not explain the bulk of unemployment, which originates instead among the rural areas and urban paupers. Moreover, the very formation of modern oligopolistic industrial activities in underdeveloped nonsocialist economies depends on the mature economies, mostly as a result of their direct investment abroad (Merhav, 1969).
15. Marx's schemes of reproduction and modern non-neoclassical two-sector growth models provide an excellent illustration of how the capital goods sector governs accumulation. If  $\alpha K_t$  is the output of capital goods at any given initial situation and if  $\lambda = K_t/K$  is the proportion of total capital stock installed in the capital goods sector, then:  $\alpha \lambda K = dK + \delta K$ , where  $d$  is depreciation and  $\delta$  is the percentage increase in capital stock. Hence  $d\delta/d\lambda > 0$ .

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## Appendix

### Share of Profit, Utilization Rate, Growth and Profit Rate

The investment function in the Del Monte model yields steady-state solutions for any given degree of utilization.

$$D = auvK + bKq\dot{u} + v + cK\dot{x} + zK$$

Where:  $\dot{u}$  is the change in the degree of utilization  $u$ ,  $\dot{x}$  is the rate of change of output  $x$ ,  $q$  is the share of profit reflecting the degree of monopoly. Finally,  $z$  is the net positive effect on investment of technical progress expressed as a proportion of capital stock. Hence  $uvK$  is actual output whereas  $vK$  is potential output,  $v$  is the output-capital coefficient. By the same token,  $quvK$  represents total profits and  $quv$  the rate of profits.

The proportion of investment decisions over capital stock is:

$$J = auv + bq\dot{u} + c\dot{x} + z \tag{19.1}$$

The rate of growth of output will vary whenever  $J$  exceeds, or falls short of, the ratio of saving to capital stock ( $S/K$ ). This ratio is nothing but the rate of change of capital stock,  $k$ . When  $|J - k| > 0$  a Keynesian situation of dynamic disequilibrium arises—planned investment exceeds planned savings, pulling up the rate of growth of output:

$$\dot{x} = f(J - k), f > 0 \tag{19.2}$$

Capacity utilization will increase as long as output grows faster than capital:

$$\dot{u} = u(x - k) \tag{19.3}$$

The rate of capital accumulation  $k$  is in fact equal to the propensity to save out of profits  $\times$  the share of profits  $\times$  the rate of utilization  $\times$  the output-capital ratio:

$$k = hquv; \text{ where } h = \text{propensity to save out of profits.} \quad (19.4)$$

Substituting equation 19.1 and equation 19.4 into equation 19.2 and solving for the utilization rate  $u$  when  $u = 0$  and  $x = 0$  (i.e., for a constant utilization rate and for a constant growth rate of output), we have:

$$u = \frac{-z}{v(a - hq)} \quad (19.5)$$

from which

$$\frac{du}{dq} < 0 \quad (19.5a)$$

Substituting now the value of  $u$  as given by equation 19.5 into equation 19.4 and putting equation 19.4 into equation 19.3, it is possible to solve for  $x$  under the condition of  $u = 0$ , we then obtain:

$$x = \frac{-zhq}{(a - hq)} \quad (19.6)$$

from which

$$\frac{dx}{dq} < 0 \quad (19.6a)$$

Finally, the rate of profits ( $P/K$ ) can be written as:

$$r = quv \quad (19.7)$$

Putting equation 19.5 into equation 19.7 we get:

$$\frac{dr}{dq} = < 0 \text{ for } u < 1 \quad (19.7a)$$

Whereas for  $u = 1$  the derivative is positive

$$\frac{dr}{dq} = v > 0 \quad (19.7b)$$

It follows, therefore, that if the utilization rate is unity, the share of profits, the growth rate of output and the rate of profits will all be positively related.

In the above, the Harrodian equilibrium growth can be expressed as

$$g + m = \frac{hqz}{a - hq} \quad (19.8)$$

Where  $g$  = growth rate of labor productivity;  $m$  = growth rate of population.

Because of the impact of the share of profits  $q$  on the degree of capacity utilization, there is no built-in mechanism assuring the fulfillment of the above equilibrium relation (Del Monte, 1975).



# 20

## Dynamic Keynesian Economics: Cycling Forward with Harrod and Kalecki

*Peter Kriesler and J. W. Nevile*

In the 1950s the plethora of existing business cycle theories gave way to a Keynesian-type theory based on Hicks' (1950) book. However, the first two expositions of Keynesian-type business cycle theory had no direct influence on Hicks' model. This paper examines the business cycle theories of Harrod and Kalecki. This is done mainly for its own sake—both of these theories are very important in the history of economic thought. But it is also of interest to see that constituent parts, which Hicks ignored, gave a richness absent in the Hicksian theory. In the case of Harrod aspects of the role of money and the explicit incorporation of imperfect competition in the micro foundation were important. While in the case of Kalecki it was imperfect competition and an emphasis on the contradictory nature of investment as both creating effective demand and capacity.

### 20.1 Introduction

Despite its great impact, Keynes' *General Theory* was a static equilibrium theory in the Marshallian short period in which the stock of capital goods, *inter alia*, was assumed to be constant.<sup>1</sup> Dynamic Keynesian economics<sup>2</sup> found its first expression in trade cycle theory (or business cycle theory in American terminology). Harrod had been already working on cycle theory and the multiplier, as used in the *General Theory*, supplied a missing essential component to complete his theory, which was soon published (Harrod, 1936). A little earlier Kalecki (1933A) had published, in Polish, an article on the trade cycle, which was the first expression of his independent formulation of Keynesian economics. Although published three years before the *General Theory*, it contains most of the essential ingredients of the Keynesian revolution in a dynamic setting, and forms the basis of the case for those

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Revised from *Cambridge Journal of Economics*, 36(2): 405–417, 2012, 'Dynamic Keynesian Economics: Cycling Forward with Harrod and Kalecki', by Kriesler, P. and Nevile, J. W. With kind permission from Oxford University Press. All rights reserved.

who argue for Kalecki's priority. It is not surprising that the way forward in Keynesian economics, achieved by removing the assumption of a constant stock of capital goods, was in the context of trade cycle theory. At the time, after the loss of interest in the analysis of economic growth over half a century earlier, trade cycle theory was virtually the only form of dynamic economics. However, the influence of Harrod and Kalecki's work went far beyond trade cycle theory.

To Harrod's disappointment, his 1936 book had little impact. It was not until the ideas in this book were revised and summarised in the 1939 *Economic Journal* article that much attention was paid to them. Hicks' 1950 book on the trade cycle was heavily influenced by Harrod (1948), as Hicks himself acknowledged. However, in his acknowledgment Hicks ignores the 1936 book, referring to nothing earlier than Harrod (1939).<sup>3</sup> Hicks' book became the dominant model of the trade cycle in the late 1950s and 1960s, replacing the plethora of models that had previously competed for attention.<sup>4</sup> Nevertheless, Harrod's influence on growth theory was more important. Under the influence of Keynes, in the 1939 article more emphasis was given to economic growth (Besomi, 1999), and this article, together with Harrod's 1948 book, reignited interest in growth theory. Not only was it the foundation of Keynesian growth theory, but neoclassical growth theory was originally a reaction to it.

Kalecki's work was translated into English and was also influential in the history of economic thought, mainly among post-Keynesian economists as an alternate, independently formulated version of Keynesian economics. At the time, it was extremely influential in the non Anglo-Saxon work on cycles, influencing the work of both Tinbergen and Frisch. Hicks (1950) contains an extremely cursory reference to Kalecki's work, describing him as a follower of Frisch.

## 20.2 Harrod's Theory of the Trade Cycle

Harrod thought that the trade cycle could not be validly analysed except in a growing economy, and cycle and growth are intertwined to some extent in all his writings on dynamic economics. Nevertheless, some of these writings focus more on the trade cycle than others. Not only does his 1936 book explicitly focus on the trade cycle, but the theory he set out in that book remained the basis of his theory of the trade cycle.<sup>5</sup> Moreover, he never again published such a detailed and thorough explanation of the trade cycle, though many of the fuzzy points in his first (1936) attempt were sharpened in later writings. The most important of these were the characteristics of the equilibrium growth path.

A simplified version of Harrod's theory can be set out in a few sentences. Using modern terminology<sup>6</sup> the model starts with the interaction of the multiplier and accelerator keeping the economy in a dynamic equilibrium

of steady growth. This comes to an end since, as the boom progresses, the parameters inevitably change causing a downturn, which in turn results in falls in net investment to zero or even negative levels. Output continues to fall or bump along a floor until the level of the capital stock becomes inadequate to produce even the low level of output at the bottom of the slump. Then net investment becomes positive again and the whole process is repeated. Many other factors can affect both investment and consumption, making each cycle unique if one looks at the fine, or perhaps not so fine, details, but the model just sketched outlines Harrod's reasons for the existence of trade cycles. However, the model is more complex than these bare bones suggest.

Underlying Harrod's trade cycle theorising, and dynamic economics more generally, are three principles or underlying assumptions:

1. Harrod held that trade cycles are inevitable in a capitalist economy (see e.g. pp. 107–106).<sup>7</sup> The underlying assumption here is that cycles are an economic phenomenon. Harrod (1936) started by considering the forces affecting the stability of static equilibrium. Harrod wanted to demonstrate that these were not so strong that dynamic factors could not cause a cycle. If this was the case then cycles would just be the result of the way an economy returns to a static equilibrium after being disturbed by an exogenous shock. In this case, the exogenous shocks would be the major cause of cycles, with economics being able to say little about primary causes, only about how frictions, lags and errors of knowledge affect the detail of cycles.
2. Cycles take place in an expanding economy. This could be a valid empirical generalisation and no doubt Harrod thought that it was, but it also became an underlying assumption.
3. Dynamic economics is about rates of change in economic variables. In other words, it can be formulated as equations about an economy in which the unknown variables to be solved for are not flows but rates of change of those flows. This is a matter of definition. The underlying assumption is that dynamic economics has its own unity. There is only one set of equations for an economy at any point of time. Analysis of the trend and cycle must be integrated.

Harrod's view of the appropriate nature of dynamic economics was very important to him. It caused controversy between Harrod and those holding the opposing, and at times more fashionable, view,<sup>8</sup> which defined dynamic as analysis in which all variables were dated with at least some lagged. However, irrespective of this controversy, the important thing is that as early as 1936 Harrod considered that defining dynamic economics in his way was essential for progress in dynamic economic theory (see, e.g., p. 88). Over the years that followed his insistence on this caused considerable misunderstanding of what Harrod was saying.

As noted above, Harrod begins with an analysis of the forces affecting the stability of a static equilibrium situation. Based on conventional 1930s microeconomic theory and the device of the representative entrepreneur, Harrod identifies three factors which increase the stability of the equilibrium position. These are that as output increases:

1. there may be diminishing returns to scale.
2. the cost (per unit used) of prime factors of production increases and
3. the elasticity of demand decreases due to diminishing marginal utility and imperfect competition (p. 30).

Harrod considers the third of these to be the most important (p. 31). His argument for this depends on the widespread existence of imperfect competition (p. 32).<sup>9</sup>

Taken together these three factors are strong enough to produce a relatively stable equilibrium position. However, there is a destabilising factor—money. Harrod does not think that the monetary system is the principal cause of the cycle but that money offsets the influence of the three stabilising factors enough ‘to allow fluctuations to take place’ (p. 48). Harrod does not spell out the exact mechanism by which the monetary system accommodates cycles in output. His reasoning is more that if the three basic stabilising forces are not to prevent any significant increase in output, prices must rise and this is precisely what we see happening. Therefore, the monetary system must be accommodating.

These four factors Harrod calls the ‘static determinants’. While they are presented as suggesting answers to the question of how stable is the static equilibrium position of a capitalist economy, their analysis is essential for another reason. A central part of Harrod’s theory of the cycle is that the parameters change over the course of the cycle. The discussion of the four static determinants underpins the analysis that leads to this conclusion and, in particular, how the profit share changes over the cycle (pp. 75–86).

Harrod’s theory of the cycle depends, among other things, on the interaction of the multiplier and accelerator, the latter of the pair being called ‘the relation’ in his 1936 book. It is easy to regard his theory as a pioneering verbal explanation of the trade cycle theory, which was set out more elegantly in mathematical form by Samuelson in his 1939 article. In fact it is a different theory of the cycle, in as much as the explanation of the turning points, a critical feature in any trade cycle theory, is completely different in the two cases. In Samuelson the turning points are the results of lags, the technical properties of linear difference equations and the size of the relevant parameters. In Harrod the turning points occur because the cumulative movements of boom (or slump) inevitably produce changes in the economy, which bring about a downturn (or an upturn). This is quite different to Samuelson’s model, where the parameters are constant and, if their sizes are

appropriate, the lags produce turning points. Harrod is adamant that while lags may affect the shape of cycles, using them to explain the existence of the cycle is an unprofitable road for a theorist to follow (p. 88).

Harrod begins his analysis of the trade cycle as such, with an economy that is enjoying a steady rate of advance. Assuming that none of the relevant parameters vary this rate of advance will continue—it is a rudimentary form of his warranted growth path in later writings. However, trade cycles do not occur because of random shocks pushing the economy off the warranted rate of growth, with the consequent famous instability producing increasing deviations from it. They exist because what Harrod calls three ‘dynamic determinants’ change the value of the relevant parameters over the course of the boom, inevitably ending in a downturn, with a similar story explaining the lower turning point.

A rate of steady advance is likely to continue if entrepreneurs are happy with what is occurring, that is if consumption is increasing at a rate that ‘justifies’ the investment being made. Harrod acknowledges that investment is for the future so this statement involves some sort of an assumption about expectations. All that he says is that orders for fixed capital and inventories ‘are given on the strength (i) of recent experience and (ii) of guesswork about the future’ (p. 88). However, he argues that point (i) dominates the cyclical behaviour of investment (pp. 95–6). Kalecki makes a similar assumption when he assumes that anticipated gross profitability, one of the major determinants of investment in his analysis, is ‘estimated from the actual gross profitability of existing plant’ (Kalecki, 1933A, p. 8) If any net investment is to be justified, consumption must be increasing, so Harrod turns to the determinants of the rate of growth of consumption. In his own words:

How much consumption increases depends on three considerations. These three considerations are deduced from the whole of the preceding analysis and occupy the central position in the trade cycle theory of this volume. They may be called the three dynamic determinants, as contradistinguished from those four determinants that have been so often referred to already, which may be called the static determinants. They are dynamic because they determine the rate of growth of output, whereas the static determinants relate to the level of output at a particular point of time. (pp. 89–90)

These three dynamic determinants are the relationship between the (household) marginal propensity to save and the average propensity to save, the shift to profits associated with increasing output and the relationship between the marginal capital-output ratio and the average capital-output ratio.

Harrod believed that as output and income increased the marginal and hence average propensity to save would rise, reducing the value of the multiplier. Whether there is a shift to profits will depend on two things: changes

in the ratio of marginal to average prime costs and the extent of diminishing elasticity of demand. While it is difficult to say much *a priori* about the combined effects of these as output increases, Harrod considered that empirical evidence indicated that there was usually a shift to profits as output increases, which also reduces the multiplier. Thus, if the steady advance is to continue the capital-output ratio must be increasing (pp. 90–3).

This may be contrasted with Kalecki's analysis of consumption, discussed in greater detail in the next section. Kalecki assumes that the consumption propensities of households depends on the source of their income, distinguishing between capitalist and workers propensities. Since workers are assumed to consume all of their income, it is only changes in distribution between wages and profits that will cause variations in the economy's average propensity to consume.

Harrod thought a steady rate of advance was likely at the beginning of a boom especially if the rise in investment and output was associated with new inventions. But, he points out, Schumpeter considers that the scope for exploiting new ideas is used up as the boom continues. Assuming Schumpeter is correct, then sooner or later the increases in the capital-output ratio will fail to offset the decline in the value of the multiplier. Consumption will not rise rapidly enough to justify net investment and, as a result, investment will decline, ending the boom (p. 94). This will cause investment to decline further and net investment may become zero or negative (p. 97). The slump is moderated because the household propensity to save drops and there is a shift away from profits increasing the size of the multiplier. Also the rate of interest usually falls, which may induce more capital intensive methods and there may be innovations. Moreover, as time passes the amount of replacement investment necessary to maintain even a low level of output increases. Thus, investment increases and a period of cumulative growth will start again (p. 101).

### 20.3 Kalecki's Trade Cycle Model

In contrast to Harrod, Kalecki's formulation of the trade cycle was 'devoid of trends', and so returned to its 'original state after each cycle' (p. 3).<sup>10</sup> The model, as was typical of most of Kalecki's work on economic dynamics, focused on the dual nature of investment as both a vital component of aggregate demand and as the major determinant of the level of capacity. Investment itself, according to Kalecki, was determined by the interplay of profits and the level of capacity utilisation.

As an economy comes out of recession, investment and, therefore, the level of capacity, have been low, so that the level of utilisation is high. This stimulates investment and therefore income and production. The stimulating effect of investment on income dominates at the start of the upswing as the level of capacity responds only slowly. Eventually, the capacity creating influence of investment dominates over its impact on aggregate demand so

that the level of capacity utilisation falls causing the level of investment or its rate of increase to fall, triggering the downturn and vice versa

An increase in investment orders calls forth an increase in the production of investment goods which is equal to the gross accumulation. This in turn causes a further increase in investment activity . . . However, after an interval of time has elapsed from the time when investment orders have exceeded the level of replacement requirements, the volume of capital equipment starts to increase. Initially this restrains the rate at which investment activity is increasing, and at a later stage causes a decline in investment orders.

In particular it is impossible to stabilize investment activity at a level exceeding the replacement requirements. Indeed, if investment orders remain at a constant level the production of investment goods, which is equal to the gross accumulation, will remain unchanged as well, while capital equipment expands, investment being greater than replacement requirements. Under such conditions, however, investment orders will begin to decrease . . . and the stability of investment activity will be disturbed.

During depression the process described here is reversed. (pp. 10–11)

As this passage demonstrates, Kalecki does not believe that the economy can be subject to stable growth, as only when gross investment is equal to replacement requirements (depreciation) can cyclical influences be avoided.

Steindl accurately describes the turning points of the cycle in Kalecki's analysis as occurring 'because the accumulating (or shrinking) capital stock reacts back on the rate of profit. A high (low) rate of profit, via the accumulation of capital, sets up a negative feedback which lowers (increases) the rate of profit again' (Steindl, 1981, p. 140).

The influence of investment on the level of income is similar, in many ways to Keynes' multiplier analysis. For Kalecki, gross profits are determined by the investment and consumption decisions of capitalists. The increase in investment during the upswing leads to increased profits, which further stimulates investment. In addition, however, the increase in profits causes capitalist consumption to increase, further stimulating aggregate demand and hence investment. So this multiplier effect increases the amplitude of cycles.

Many of the key features of Kalecki's model in this paper recur throughout his writings, and represent part of his unique contribution to post-Keynesian analysis. The key role played by profits rather than price, as sending signals to capitalists particularly with respect to investment, is reinforced by the key role that investment plays in his analysis. Like Keynes, Kalecki was critical of the view that savings determines investment, rather he reverses the relation. Investment creates profits, i.e., 'capitalists as a class gain exactly as much as they invest or consume . . . Capitalists, as a whole, determine their own profits by the extent of their investment and personal consumption' (p. 14). Importantly, Kalecki, like Keynes, believed that investment will create an

equivalent amount of saving, although access to finance may be important before the investment takes place (Keynes, 1937, pp. 207–8).

Underlying the real aspect of the cycle model, discussed above, is a detailed analysis of the money market. Here Kalecki shows that a combination of changing composition of bank liabilities, and the additional creation of credit facilitates the expansion of investment during the upswing. In other words, endogenous money plays the role of accommodating the expansion in real activity. One side effect of this is that monetary factors, including interest rates, move cyclically. They will usually only have a minor feedback impact on the cycle, according to Kalecki, as they are of secondary importance as an influence on investment, after gross profitability, and the rises in interest rates are slow in relation to the increase in profitability. However, interest rates may rise 'sufficiently fast for the increase in gross profitability to be fully offset' preventing the upswing but this will be dependent on the 'response of the banking system' (p. 15). In the original Polish version of the paper, Kalecki made the much stronger assumption that 'the rate of interest is of secondary importance for the will to invest, the factor of prime importance being unquestionably the gross profitability of existing plants' (Kalecki, 1933B, pp. 97–8).

The model sketched out above is set out in Kalecki (1933A) as a system of mixed-difference differential equations.<sup>11</sup> However, the various simplifying assumptions Kalecki introduced into the model in his exposition make it possible and illuminating to represent a simplified model as a system of linear second order difference equations (see Goodwin, 1989, p. 249). Of particular importance in this context are treating possible curvilinear equations as linear—sometimes by stating that a result is only approximately true if the relevant functions are curvilinear (see, e.g., p. 5) and sometimes by an explicit assumption that a function is linear (see, e.g., p. 6). Often he goes further and assumes functions that are curvilinear, but only have very small changes in magnitude, to be constant (see, e.g., p. 6).

The simplified model in difference equation form, gives a rigorous mathematical model, which produces all the results described verbally in this section. This may be helpful for those who prefer to work with systems of difference equations.<sup>12</sup> Moreover, the difference equation simplified model can be used to provide a solution to a problem inherent in Kalecki's (1933A) model. Goodwin (1989) notes with approval that Kalecki chose for the parameter that determined the nature of the cycle the precise value that causes the cycle to repeat itself, and then continues

Alas, Frisch was there to point out that since the Greeks it has been accepted that one can never say an empirical number is exactly equal to a precise number. Given his aim, this was a deadly blow to Kalecki. (pp. 249–50)

One solution to this dilemma is to do as Frisch did and use decreasing cycles kept going by random shocks, but such parameters are not very plausible (Goodwin, 1989). In the more plausible case where the parameters are



such that the cycles are increasing in size, the model in the mathematical appendix provides an answer to this problem, though it can also be used to give a solution where the parameter determining the behaviour of the cycle is close to that which gives cycles that repeat themselves. In this case, again random shocks can prevent the cycle departing too far from a recurring cycle of constant magnitude.<sup>13</sup> If this solution is preferred as being closest to the one that Kalecki himself had in mind, the question then arises of are the parameter values taken together at all plausible or even feasible. It is shown in the mathematical appendix that they are both feasible and plausible.

Kalecki then analyses the impact of a number of important factors on his basic model. Chief among these is the role of wages. Here he argues that the share of real capitalist income cannot be influenced by changes in money wages, which will not have a real effect on the economy under conditions of free (perfect) competition. If nominal wages fall, this will not influence real gross profits, which are determined by capitalist expenditure decisions. Instead, workers' demand will fall, which will lead to equivalent reductions in the prices of their consumption goods so that there will be no change in real wages or, therefore, in distribution. The impact of a fall in wages will, however, be different under imperfectly competitive conditions.

For Kalecki, imperfect competition was part of the institutional framework of capitalist economies. Perfect competition was a simplifying assumption, a myth when used as an actual description (Kalecki, 1939, p. 252). In Kalecki's analysis, imperfect competition, by determining the distribution of income between wages and profits, influences the level of employment and the real wage but not aggregate profits, which are determined by the expenditure decisions of capitalists. To illustrate this, Kalecki considers the implications of industry being cartelised, and therefore maintaining constant profit margins during the cycle. This, he argues, increases the amplitude of output cycles as the constancy of profit margins over the cycle mean that prices cannot adjust the way that they do in the competitive model to reduce fluctuations. If we now consider the impact of a reduction in nominal wages, while this will still have no impact on real capitalist income, with imperfect competition a fall in nominal wages will lead to a fall in real wages, which, in turn, will reduce employment (Kalecki, 1933B, p. 107).

## 20.4 Harrod and Kalecki Compared

While Harrod was disappointed with the influence of his 1936 book upon the development of economics, after his 1939 article in the *Economic Journal* his work became very influential. The trade cycle theory in Hicks (1950), which was dominant in the 1950s and early 1960s was first sketched out in reaction to the 1939 article and Harrod's 1948 book. Kalecki's work had much less influence, at least on economics in English speaking countries. While speculative, it is plausible to lay the blame for this on the exposition

of his first article on business cycles to be published in English, his 1935 *Econometrica* article. This sets out what is essentially the same model as Kalecki (1933A), but the exposition is completely different. In 1933 Kalecki used intuition and logic to make his points. In the 1935 article the exposition is so much more formal and mathematical that 41 equations are used to reach the key figure illustrating the basic business cycle mechanism. The figures themselves are identical in the two papers.

As far as the models themselves are concerned, the most important point of comparison between Harrod and Kalecki is on the relative importance of the trend. For Harrod, the cycle and the trend are intertwined, and the cycle cannot be analysed independent of the trend. This was a position that Kalecki was to come to towards the end of his life. However, in 1933 he believed that the cycle could be considered independent of the trend, and this was the central feature of his early analysis.

In fact, at the time of the original paper, Kalecki believed that capitalist economies can only grow if there are exogenous influences. As he reiterated in 1962:

Harrod observes, rightly, that his theory exhibits the basic 'antimony' of the system; he thinks that 'antimony' leads to fluctuations around the trend line. I believe that the antimony of the capitalist economy is in fact more far-reaching; the system cannot break the impasse of fluctuations around a static position unless economic growth is generated by the impact of semi-autonomous factors such as the effect of innovations upon investment. It is only in such a case that cyclical fluctuations do occur around the ascending trend line. (Kalecki, 1962, p. 134)

Steindl has subsequently tried to reconcile Kalecki's and Harrod's approaches in a number of papers (Steindl, 1989, 2005). In particular, Steindl argues that 'the exogenous influence is combined with endogenous elements and it is the two in their combined and mutual interaction which produces the trend' (Steindl, 2005, p. 165).

For Harrod, changes in the household's propensity to save are an important determinant of turning points and, more generally, it is systematic parameter changes that produce the cycles. Lags may play a minor role but they are not fundamental. Lags are fundamental in Kalecki's cyclical mechanism. Moreover, for Kalecki, consumption and saving are determined by distribution, as workers are assumed to consume all their income, while capitalist consumption has both a constant part and a part that is proportionate to profits. This also highlights another important difference between the two economists—the role of distribution. For Kalecki distribution plays a key role in determining cyclical behaviour, as well as being a major determinant of the level of output and employment. Capitalist expenditure decisions are the major variable explaining total profits, while the distribution between

wages and profits, in an imperfectly competitive economy, will influence employment in the wage goods producing sector. While Harrod was concerned to examine any systematic relationship between the rate of growth of output and the share of profits in income, this did not have the central importance that it did in Kalecki's analysis.

Another major difference between the two theorists is the investment theory used. In Harrod's cycle the acceleration principle is of overwhelming importance, though the interest rate and technical change may have minor parts to play. Kalecki's investment theory is simple but realistic with profits having a positive influence and the size of the capital stock compared to the trend level of output (assumed to be constant) a negative one, while interest rates are only of 'secondary importance'.<sup>14</sup>

For both Harrod and Kalecki, imperfect competition was endemic in capitalist economies and played an important role in their analysis of cycles, although they came to very different conclusions as to its effect. Harrod's first major original work in economic theory was to develop, in 1928, a theory of imperfect competition,<sup>15</sup> and he, like Kalecki considered this form of market structure to be widespread and important. As noted in Section 2, Harrod (1936) makes the empirical judgement that imperfect competition is so widespread that the decline in the marginal revenue it causes is the most important of the factors identified as contributing to the stability of static equilibrium. By contrast, as noted in Section 3, Kalecki argued that imperfect competition's impact was through its influence on distribution, in particular, it substantially reduced variability in profit margins over the cycle, and this increased the amplitude of output cycles.

Nevertheless, what the two theories have in common is much more important than their differences. First, as far as the cycle itself is concerned, in both it is real factors that initiate and drive the cycle, though the monetary system has to be accommodating if cycles are to occur.

Harrod's view of the importance of monetary factors for the cycle is very similar to that of Kalecki. Harrod (1936) states that 'these factors do play a part although I submit a subordinate one' (p. 110). Harrod considers the interest rate normally to be a stabilising force rising on the booms and falling in slumps, but experience shows that it is not strong enough in its effects to prevent booms and slumps. Larger movements would be required to significantly smooth the cycle. However, the banking system only directly affects short term rates and hence inventory cycles. As far as investment in fixed capital is concerned, it is the long term rate that is relevant. This is determined by expectations of future rates (p. 121) and certainly not by loanable funds theory. It is very unlikely that expectations would produce the required long term changes that could be needed from time to time. Kalecki similarly argues that changes in interest rates, while being procyclical and therefore capable of reducing the amplitude of cycles, have little influence as their effects are of secondary importance.

Much more importantly, for both Harrod and Kalecki, it is investment that determines savings, not the other way around, and fluctuations in investment lead the cycle. It is this key relationship and the fundamental role of investment that both links their analysis and provides the Keynesian element.

Both theories had an influence on trade cycle theory and dynamics more generally but in both cases the influence was not as fruitful as it might have been. Kalecki (1933A) had an emphasis on real life aspects and institutions, whereas this was obscured in the technical and more academic presentation in Kalecki (1935), the first of his publications on his trade cycle model to appear in English. As is often the case when an author is presenting new ideas for the first time, Harrod (1936) does not always present his trade cycle theory in a way that is easy to grasp in the first reading. If Kalecki had published in English in 1933 and more had made the struggle to understand Harrod's 1936 book, the history of dynamic economic thought would have been different and more fruitful.

## Notes

University of New South Wales, Australia. The authors would like to thank two anonymous referees for their helpful comments.

1. For a list of the variables which Keynes took as constant see Keynes (1936, p. 245).
2. For the purpose of this article Keynesian economics is defined as a macroeconomics in which the level of output and income are determined by effective demand.
3. See Hicks, 1950, p. vi and pp. 6–10. It is not surprising that 'the penny dropped' for Hicks when he read Harrod (1948), in which Harrod's ideas are generally set out more clearly than in Harrod (1936) or in Harrod (1939). However, when Hicks introduces the most complex of these ideas, the cause of the upper turning point, he gives Harrod (1936) as a reference. Swan (1950) pp. 193–5 discusses the extent to which there was any essential difference between the theory of the trade cycle in Hicks (1950) and that of Harrod.
4. See Targetti (1992, p. 78), Cornwall (1972, p. 54), Blatt (1983, p. 189) and Hamouda (1997, pp. 305).
5. Harrod considered that his later writings on dynamic economics expressed his ideas in a 'more precise form', but continued to reaffirm the central parts of his original theory of the trade cycle (see, e.g., Harrod, 1951, pp. 261–3).
6. In general the discussion of Harrod's theory uses modern terminology, which is both more familiar and more concise. However, it is also more precise and sometimes this distorts the full meaning and Harrod's own words are used.
7. All page numbers in this section without any citation attached refer to Harrod (1936).
8. Each side denied that what the other was engaged in was even really dynamic economics. See, for example, footnote on page 473 in Haberler's influential 1937 book, republished as Haberler (1946).
9. Interestingly, these three factors are very similar to the factors that Kalecki mentions as forming the traditional explanation as to the limits to the size of the firms—which Kalecki regards as being an incomplete explanation (Kalecki, 1937, pp. 286–7).

10. All page numbers in this section without any citation refer to Kalecki (1933A). This is the original English translation of Kalecki's *Essay on the Business Cycle Theory*, and only translates the first chapter of that work (the whole *Essay* is translated in Kalecki, 1933B).
11. Differential equations are preferred by many mathematical economists because time is regarded as being continuous. In fact even today in most markets entrepreneurs receive data in blocks and for the same periods of time, e.g. months, quarters or years. This was much more the case in 1933.
12. Kalecki himself provides the precedent for this. Goodwin (1989) describes how he was introduced to this splendid (Goodwin's word for Kalecki, 1933A) piece of work at a seminar at Oxford in which 'to make the theory manageable the original presentation was in the form of a linear second order difference equation' (p. 249).
13. Steindl argues that linear models subject to random shocks can be adequately used to explain cyclical processes (Steindl, 1989, especially p. 311).
14. An anonymous referee has pointed out that, although Kalecki does not have output in his investment function, the correlation between output and profits makes it similar to a flexible accelerator model.
15. See Phelps Brown (1980); this was later published as Harrod (1930).

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### Mathematical Appendix\*

Kalecki (1933A) assumes 'a closed economy devoid of trends i.e. one which returns to its original state [i.e. equilibrium position] after each cycle' (p. 3). He starts by deriving an equation for gross real profits, P,

$$P_t = (B + A_t) / (1 - c) \quad \text{equation 3 on p1}$$

where B is the constant part of capitalist consumption A is gross investment and c is the ratio of the variable part of capitalist consumption to total profits. c is assumed to be constant and small. It is also assumed that inventory investment and replacement investment are constant over the cycle (pp. 4 and 6, respectively).

For some purposes it is helpful to rewrite the above equation in the form

$$P_t = m_1(B + A_t) \quad \text{equation 3 A}$$

Kalecki then defines two further terms: I the orders for new capital goods and D the delivery of new capital goods. The production period for capital goods is taken as the length of the period so that  $D_t$  equals  $A_{t-1}$  equals  $I_{t-2}$ .

If K is the stock of capital

$$K_t - K_{t-1} = D_t - U \quad \text{equation 5 on p 6}$$

The rate at which new capital goods are ordered, or  $I/K$ , depends on the rate of profits, P, and the rate of interest, i, at the time orders are made

$$I_t/K_t = F[P_t/K_t, i_t] \quad \text{equation 7 on p 8}$$

F is an increasing function of the profit rate and a diminishing function of the interest rate. Kalecki assumes that the rate of interest is procyclical and, in particular,

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\*All page numbers in this section without any citation attached refer to Kalecki (1933A).

it is an increasing function of  $P_t/K_t$ , but it increases slowly enough so that  $I_t/K_t$  is always an increasing function of  $P_t/K_t$ . This gives

$$I_t/K_t = F[P_t/K_t] \quad \text{equation 8 on p 9}$$

This is, in effect, an equation for the marginal propensity to invest out of profits. Kalecki assumes equation (8) to be linear so that this propensity can be denoted by a parameter whose value does not vary—say  $m_2$ .

Combining this linear version of equation (8) with equation (3) gives an equation which Kalecki writes in a form convenient for his purposes, namely

$$I_t = m[B + A_t] - nK_t \quad \text{equation 10a on p 9}$$

This equation is used to explain the trade cycle. As pointed out above, Kalecki does this using intuition and verbal logic but there are advantages in doing this formally by solving the relevant difference equation.

As we noted above

$$D_t = I_{t-2}$$

and

$$K_t = K_{t-1} + D_t - U$$

Taking these two equations together gives

$$K_t = K_{t-1} + I_{t-2} - U$$

And substituting equation 10a for  $I_{t-2}$  gives

$$K_t = K_{t-1} + mB + mA_{t-2} - nK_{t-2} - U$$

Or, since  $A_{t-2} = D_{t-1}$

$$K_t = K_{t-1} + mB + mD_{t-1} - nK_{t-2} - U$$

But

$$D_{t-1} = K_{t-1} - K_{t-2} - U$$

Substituting this for  $D_{t-1}$  in the previous equation and rearranging terms gives

$$K_t - (1 + m)K_{t-1} + (m + n)K_{t-2} = mB - (1 - m)U$$

This produces a cycle that repeats itself exactly if  $m + n = 1$ .

The next step is to discover if, when  $m + n = 1$ , the range of values for  $m$  and  $n$  include some that are plausible in economic terms as opposed to mathematical ones. Before starting this task it is helpful to remind ourselves the economic meaning of

parameters  $m$  and  $n$ .  $m$  is the product of two parameters. One,  $m_1$ , is the multiplier implied by the capitalists' marginal propensity to consume out of income from profits. The other,  $m_2$ , is the encouraging effect of profits on gross investment or the marginal propensity to invest.  $m_1$  must be greater than one, but only a little greater, if Kalecki's judgement that the relevant marginal propensity to consume is small.  $m_2$  can be greater or smaller than 1 but is likely to be close to 1. The product of the two will thus be fairly close to 1.

$n$  is the parameter showing the discouraging effect on gross investment of an increase in the capital stock. It too must be positive but the equation for investment, in which it first appears, implies that it has a small value. Thus the condition that  $m + n$  must equal one is completely plausible but so are values of  $m$  and  $n$  that make their sum equal to (say) 0.9 or 1.1.

If  $n + m$  are not equal to one what happens depends on both the size of their sum and the ratio of  $m$  to  $n$ . There is a very large range of possibilities. However, any plausible values for  $m$  and  $n$  result in cycles. The problem is that the majority of plausible possibilities give cycles in which the amplitude (or the difference between the values at the peak and the trough) increases or decreases too rapidly to be consistent with actual cycles in capitalist economies, even after allowing for the effects of random shocks. This can be dealt with in two ways. One is to argue that experience of actual cycles shows that the values of  $m$  and  $n$  must be among those that produce cycles that do not diverge rapidly from a cycle that repeats itself. The other is to follow Harrod and argue that the boom and the slump systematically change the parameters to produce a turning point. Harrod thought that this occurred in both the boom and slump. But it is only necessary for it to occur in the slump since, once the accelerator ceases to operate due to limits on disinvestment, a new cycle starts when the excess capacity finally disappears (Swan, 1950, pp. 197–9).



**Part III**  
**Harrod**

# 21

## The Mathematical Formulation of Harrod's Growth Model

*J. W. Nevile*

There is still some controversy about exactly what assumptions are required to give Harrod's famous unstable equilibrium rate of growth;<sup>1</sup> and some writers are still discounting Harrod's model because of unsatisfactory assumptions which they attribute to the model, but which the model does not in fact require.<sup>2</sup> In view of the place that Harrod's unstable equilibrium rate of growth has come to occupy in the literature, it is important that the minimum assumptions required to give Harrod's result should be clearly established. The following shows that the instability Harrod emphasises follows from his two basic (multiplier and accelerator) premises plus a straightforward assumption about expectations. This is so whether the version of the accelerator used is a "rigid" one or a "flexible" one which takes into consideration surpluses or shortages in the existing capital stock.

Let us consider first the simpler case of the rigid accelerator model. Harrod's first assumption is that savings are a constant proportion of income.

$$S_t = sY_{t-1} \quad (1)$$

It makes little difference whether this function is lagged or not. Harrod himself prefers the non-lagged version, in which saving is a constant proportion of current income.<sup>3</sup> However, in this case his equation  $G_w = \frac{s}{C_r}$  gives an economically meaningful equilibrium rate of growth only if  $s$  is less than  $C_r$ . If the savings function is unlagged  $G$  must be defined as  $\frac{Y_t - Y_{t-1}}{Y_t}$  which can be greater than one only if  $Y_t$  and  $Y_{t-1}$  differ in sign. Thus, an unlagged savings function in a Harrod model implies the additional assumption that

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$s$  is less than  $C_r$  if the equilibrium rate of growth is to have economic meaning. This is a very mild restriction, but, in order to consider the more general case, in which no limits are placed on the size of the propensity to save or the accelerator,<sup>4</sup> a lagged savings function is used. If an unlagged function is substituted our conclusions are unchanged subject to the additional assumption that  $s$  is less than  $C_r$ .

Harrod's second assumption is that the desired marginal capital-output ratio is constant. In the rigid accelerator case this gives the equation:

$$I_t^a = C_r(Y_t^a - Y_{t-1}) \quad (2)$$

where  $I_t^a$  is planned or *ex ante* investment in period  $t$ , and  $Y_t^a$  is the output expected in period  $t$  when investment plans are made.

Next an assumption about expectations is needed. The simplest, compatible with Harrod's model, is that the rate of increase of output expected to occur in a period is proportional to the rate of increase of output in the period immediately ended, *i.e.*,

$$\frac{Y_t^a}{Y_{t-1}} = m \frac{Y_{t-1}}{Y_{t-2}}$$

If the equilibrium rate of growth  $G_w$  is equal to  $\frac{s}{C_r}$ , as it is in Harrod's model, then  $m$  must equal one. Assuming this,

$$Y_t^a = \frac{(Y_{t-1})^2}{Y_{t-2}} \quad (3)$$

Equation (3) states that entrepreneurs expect the most recent past rate of growth of output to continue in the next period.

To complete the model an assumption relating planned investment to *ex post* investment is needed. It is most realistic to assume that planned investment equals actual investment when expected demand equals actual demand, that planned investment is greater than actual investment when expected demand is less than actual demand and that planned investment is less than actual investment when expected demand is greater than actual demand. That is, in our aggregate model involuntary investment is proportional to the difference between expected output and actual output.

$$S_t - I_t^a = a(Y_t^a - Y_t) \quad (4)$$

( $S_t$  is *ex post* investment as well as *ex post* savings in period  $t$ .  $a$  is, of course, positive.)

Equations (1), (2), (3) and (4) together give the difference equation:

$$aY_t - (C_r + a)\frac{(Y_{t-1})^2}{Y_{t-2}} + (C_r + s)Y_{t-1} = 0$$

Dividing throughout by  $Y_{t-1}$  and putting  $R_t = \frac{Y_t}{Y_{t-1}}$  this becomes

$$aR_t - (C_r + a)R_{t-1} + C_r + s = 0$$

which has the solution

$$R_t = 1 + \frac{s}{C_r} + A\left(\frac{C_r + a}{a}\right)$$

where  $A$  is a constant given by the initial conditions. Thus the model has an equilibrium rate of growth such that  $\frac{Y_t}{Y_{t-1}} = 1 + \frac{s}{C_r}$ , and this equilibrium rate is unstable (since both  $C_r$  and  $a$  are positive,  $C_r + a$  is greater than  $a$ ).

In the flexible accelerator case the shortage of capital existing when investment plans are made affects those plans. Equation (2) is replaced by

$$I_t^a = C_r(Y_t^a - Y_{t-1}) + D_{t-1} \tag{2a}$$

$D_{t-1}$  is the shortage of capital at the end of period  $t-1$  when plans are made for period  $t$ . A negative  $D_{t-1}$  represents surplus capital.

$D_{t-1}$  is obviously the difference between the existing capital stock and that appropriate to the level of output in period  $t-1$ . However, there is a more useful way of identifying  $D_{t-1}$ . If, in a period, *ex post* investment is equal to *ex ante* investment, and *ex post* output is equal to that expected at the beginning of the period when the investment plans were made, the capital stock at the end of the period will be appropriate to the output of that period. Therefore, any shortage of capital at the end of a period will equal unplanned disinvestment (or negative unplanned investment), plus the amount by which entrepreneurs misjudged the appropriate capital stock, *i.e.*, plus the difference between *ex post* output and expected output times the acceleration coefficient.

$$D_{t-1} = -a(Y_{t-1}^a - Y_{t-1}) + C_r(Y_{t-1} - Y_{t-1}^a) \tag{5}$$

Equations (1), (2a), (3), (4) and (5) together give the difference equation

$$aY_t - (C_r + a)\frac{(Y_{t-1})^2}{Y_{t-2}} + (C_r + a)\frac{(Y_{t-2})^2}{Y_{t-3}} + (s - a)Y_{t-1} = 0$$

Again dividing throughout by  $Y_{t-1}$  and putting  $R_t = \frac{Y_t}{Y_{t-1}}$  gives

$$aR_t - (C_r + a)R_{t-1} + (C_r + a)\frac{(R_{t-2})^2}{R_{t-1}} + (s - a) = 0 \quad (6)$$

To discover whether this equation has an equilibrium rate of growth substitute  $R = R_t = R_{t-1} = R_{t-2}$ . If this is done, equation (6) reduces to  $R = 1 + \frac{s}{C_r}$ . That is, there is an equilibrium rate of growth identical with that given by Harrod's equation  $G_w = \frac{s}{C_r}$ .

In view of the non-linearities, instead of solving equation (6) to discover whether this equilibrium rate of growth is unstable, one can undertake the more limited task of discovering whether a departure of  $R_t$  from the equilibrium rate of growth of  $R$  necessarily causes ever-increasing departures of  $R_t$  from  $R$  in the same direction: *i.e.*, to show that  $R$  is an unstable equilibrium it is required to show that: if  $R_{t-1} > R_{t-2} \geq R$ , then  $R_t > R_{t-1}$ , and that if  $R_{t-1} < R_{t-2} \leq R$ , then  $R_t < R_{t-1}$ .

Rewrite equation (6) in the form

$$R_t = R_{t-1} + \frac{C_r}{a} \left[ R_{t-1} - \left( 1 + \frac{s}{C_r} \right) \right] + \left( \frac{C_r}{a} + 1 \right) \left( 1 - \frac{R_{t-2}}{R_{t-1}} \right)$$

The right-hand side of this equation consists of three terms, the first being  $R_{t-1}$ . If  $R_{t-1} = R_{t-2} = 1 + \frac{s}{C_r}$ , then the second and third terms are both zero and  $R_t = R_{t-1}$ . If  $R_{t-1} > R_{t-2} \geq 1 + \frac{s}{C_r}$ , the second and the third terms are both positive and  $R_t > R_{t-1}$ . If  $R_{t-1} < R_{t-2} \leq 1 + \frac{s}{C_r}$ , the second and the third terms are both negative and  $R_t < R_{t-1}$ . Thus, the flexible accelerator version of Harrod's model also has an unstable equilibrium rate of growth.

## Notes

1. See, *e.g.*, Dale W. Jorgenson, "On Stability in the Sense of Harrod," *Economica*, New Series, Vol. XXVII, August 1960, pp. 243-8.
2. See, *e.g.*, R. G. D. Allen, *Mathematical Economics* (London, 1959), pp. 74-9.
3. "Notes on Trade Cycle Theory," *ECONOMIC JOURNAL*, Vol. LXI, June 1951, p. 269.
4. Except that it is assumed that they are both positive.

# 22

## The Stability of Warranted Growth<sup>1</sup>

J. W. Nevile

### 22.1 Introduction

In the twenty-one years since Harrod published his "Essay in Dynamic Theory"<sup>2</sup> the feature of his growth model that has attracted most attention is the marked instability of the equilibrium or warranted rate of growth. Given Harrod's assumptions about an economy there is an equilibrium rate of growth of income which, if established, will be maintained, but this equilibrium rate is so unstable that any slight deviation from it will cause increasingly large deviations in the same direction. This proposition has wide ramifications and is particularly relevant to a basic question in growth economics, namely, whether growth in a free enterprise economy will occur at a rate determined by supply conditions or at one determined by effective demand. In Harrod's terminology, will an expanding free enterprise economy tend to grow at a rate,  $G_n$ , which is the maximum "rate of advance which the increase in population and technological improvements allow"<sup>3</sup> or will it grow at a rate  $G_w$ , the rate which ensures that investment is precisely "warranted", *i.e.* that there are neither surpluses nor deficiencies of capital. As  $G_w$  is also Harrod's equilibrium rate of growth, the stability of this equilibrium rate is of some relevance to the question. If one accepts Harrod's thesis that  $G_w$  is an unstable equilibrium, then it follows that growth will tend to occur at a rate equal to  $G_n$ . Whenever the rate of growth is less than  $G_w$  it will diminish until there is no growth at all. Growth is unlikely to continue for long at a rate precisely equal to  $G_w$ , since any slight disturbance will cause the rate of growth to depart further and further from  $G_w$ . Therefore, if there is to be growth, it must be at a rate greater than  $G_w$ ; and if there is growth at a rate greater than  $G_w$ , the growth rate will increase rapidly until it reaches  $G_n$ , the maximum possible rate of growth. That is, in an expanding

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economy growth will tend to occur at a rate equal to  $G_w$ . This argument falls to the ground if Harrod's instability thesis is not valid.

In a recent article Rose argues that the instability of Harrod's equilibrium rate of growth depends on an implicit and unjustified assumption of lags in the investment function, and that, if this assumption is removed, Harrod's equilibrium rate of growth is a stable one.<sup>4</sup> The present article argues that Rose's criticism of Harrod on this score is unjustified, but that if one examines the other, explicit, assumptions in Harrod's model, one will find better grounds for the thesis that  $G_w$  is a stable equilibrium rate of growth. The key assumptions from this point of view are that a constant proportion of income is saved, that all investment is acceleration-induced investment, and that entrepreneurs' expectations of future income levels are based on events of the immediate past without any consideration of whether changes observed are likely to be permanent or transitory. In this article each of these assumptions is examined in turn and it is shown that in each case relaxing the assumption tends to make  $G_w$  more stable.

## 22.2 Harrod's Model and Rose's Amendment

For convenience we will very briefly set out Harrod's model using the symbols of *Towards a Dynamic Economics*. The basic equation is an identity  $GC = s$ . An examination of the definitions of the terms  $G$ ,  $C$  and  $s$  will show that this reduces to savings equals investment.  $G$  is the increase in production in any period expressed as a fraction of total production. In the symbols conventional in macroeconomics  $G = \frac{\Delta Y}{Y}$ .  $C$  is the increase in capital over the period divided by the increase in production over that period, *i.e.*  $C = \frac{I}{\Delta Y}$ . And  $s$  is the proportion of income saved or, in conventional symbols,  $\frac{S}{Y}$ . Thus  $GC = s$  can be written  $\frac{\Delta Y}{Y} \times \frac{I}{\Delta Y} = \frac{S}{Y}$  which reduces to  $I = S$  or investment equals savings.

Harrod then introduces the equation  $G_w C_r = s$ .  $G_w$  is the rate of growth "in which producers will be content with what they are doing",<sup>5</sup> *i.e.* in which neither surpluses nor deficiencies of capital develop so that investment is precisely "warranted". If entrepreneurs expect the most recent past rate of growth to continue, then once  $G_w$  is established growth will continue at that rate in the absence of shocks from outside.  $C_r$  is the desired marginal capital-output ratio, *i.e.*  $C_r = \frac{I^*}{\Delta Y}$  where  $I^*$  is the amount of investment entrepreneurs

in total desire to make when income increases by  $\Delta Y$ . If both  $C_r$  and  $s$  are constant  $G_w$  will also be constant. Harrod assumes that  $s$  is constant and that, given the rate of interest,  $C_r$  is also constant. It also follows from the

constancy of  $s$  and  $C_r$  that  $G_w$  is an unstable equilibrium. In Harrod's own words:

... if the value of  $G$  is above that of  $G_w$ , the value of  $C$  must be below that of  $C_r$ ; there will be insufficient goods in the pipeline and/or insufficient equipment, and orders will be increased [increasing the rate of growth still further]. If the value of  $G$  is above the value of  $G_w$ , that is if the actual rate of growth is above the line of growth consistent with a steady advance, orders will be increased. And, of course, conversely.<sup>6</sup>

There is one final concept,  $G_n$ , to consider. " $G_n$  ( $n$  for natural) is the [maximum] rate of advance which the increase of population and technological improvements allow."<sup>7</sup> If  $G_n$  is below  $G_w$ ,  $G$  will generally be below  $G_w$  and the economy will be stagnant. If  $G_n$  is above  $G_w$ ,  $G$  will generally be above  $G_w$  and the economy will be secularly booming.

Rose argues that the key feature of Harrod's model, the instability of  $G_w$ , depends on an implicit lag in the investment function, and that if this is removed the instability disappears. He combines the assumption of a constant average propensity to consume with the investment equation

$i = c \frac{dy}{dt} + kv$  where  $i$  is investment,  $y$  income,  $t$  time,  $v$  the amount of capital deficiency,  $c$  the acceleration coefficient and  $k$  a positive constant. Rose has no difficulty in showing that the resulting model gives a stable not unstable equilibrium growth path.<sup>8</sup> But consider the implications of  $i = c \frac{dy}{dt} + kv$ .<sup>9</sup>  $\frac{dy}{dt}$  is the rate of growth of income at a point in time. In other

words, at as the rate of growth of income changes from month to month or even from day to day, investment changes also. If, for example, after orders have been given (and the physical investment started) the rate of income growth declines temporarily before the physical investment is finished, the rate of investment will also decline even though this may mean cancellation of some orders. Similarly, if the rate of growth increases, however temporarily, the rate of investment increases, equally temporarily. A rate of investment as volatile as this is decidedly implausible. It is more usual in models of fluctuations and growth to make use of the device of the planning period when considering investment. This results in a less volatile rate of investment. At the beginning of the period entrepreneurs make investment plans and do not change these plans during the period.<sup>10</sup> The period can be quite short provided it is not virtually instantaneous (as in Rose's model). If period analysis is used a constant average propensity to consume can be combined with a function which makes investment a constant ratio of the expected increase in income during a period plus any deficiency of capital existing at the beginning of the period. If an assumption that entrepreneurs expect the most recent past rate of growth to continue is added, the resulting model



has the formal characteristics of Harrod's model, and in particular has an unstable equilibrium rate of growth of income.<sup>11</sup>

### 22.3 Harrod's Key Assumption

The three key assumptions mentioned in section I are now examined in turn. It is shown that each of them is unduly rigid and that relaxing them reduces the instability of the equilibrium rate of growth.

The first assumption to be examined is that relating to savings. Harrod assumes that savings is a constant proportion of current income.<sup>12</sup> The issue is not, of course, whether the proportion of income saved is absolutely invariable, but whether it is likely to vary significantly relative to variations in the rate of growth of national income. Harrod maintains that it will not.

Without any great revolution  $G$  might easily change from 2 to 6 per cent. This clearly could not cause saving to be trebled. The extreme case of savings being as low as 2 per cent, of income and all extra income, due to a rise of  $G$ , being saved may be ruled out. If saving is greater than 2 per cent, then for saving as a fraction of income to increase by as much as  $G$ , consumption would have to be cut (in all probable circumstances by large amounts) as income rose, and this, too, may be ruled out.<sup>13</sup>

The matter is not quite as clearcut as this. Remember that Harrod is talking about magnitudes in real terms, not money magnitudes. Remember also that he is concerned with departures from an equilibrium rate of growth, not with an economy already in the depths of slump or the heights of a boom. If, say, the equilibrium rate of growth of the national income is 2 per cent., it seems to the present writer that it would need a very great revolution for the real rate of growth to increase suddenly to 6 per cent. Any likely changes in  $G$  are smaller than the one in Harrod's example; hence it is not immediately apparent that changes in  $s$  will necessarily be insignificant in relation to them.

Perhaps more important is the possibility that changes in  $G$  may bring about corresponding changes in  $s$ , through changes in the level of undistributed profits. If  $G$  increases sharply the level of undistributed profits as a proportion of income is likely to rise. Harrod himself notes that "companies are likely to save a large fraction of short period increases of net receipts".<sup>14</sup> If  $G$  declines the reverse is likely to occur and the level of undistributed profits as a proportion of income will fall. In extreme cases the level of undistributed profits may even become negative.

The tendency for undistributed profits as a proportion of income to vary with  $G$  can be observed in empirical data. For example, in Australia in the period since 1948 undistributed profits have usually been between 3.2% and 3.4% of gross national product. The years in which they were

a noticeably higher proportion were 1950–51 (5.1%, 1953–54 (4.5%) and 1954–55 (4.0%). These were all years in which gross national product in real terms increased greatly. In 1950–51 the increase in real gross national product was the greatest in the period, and was roughly four times the average increase. In the other two years mentioned the increase in real gross national product was roughly twice the average for the period. The only year in which undistributed profits were much below the normal proportion of gross national product was 1952–53, when they were 2.3% of gross national product. In this year there was almost no increase in real gross national product. It is true that in 1951–52 real gross national product actually declined in Australia, but that undistributed profits were still 3.2% of gross national product. However, this was a year of very great inflation (which kept up company income and undistributed profits). The behaviour of an economy under great inflationary pressure is not very relevant to Harrod's case of departures from an equilibrium rate of growth.

Thus both *a priori* arguments and empirical evidence support the proposition that as  $G$  varies the level of undistributed profits and hence  $s$  vary in the same direction. It is not argued that when  $G$  changes there will usually be a change in  $s$  large enough to offset it completely, so that there is no change in  $C$ . Nevertheless, it is likely that  $s$  will tend to change in the same direction as  $G$  and this together with other factors to be discussed may be sufficient to reduce greatly or even completely eliminate the instability of the equilibrium rate of growth.

Next let us examine the assumption that all investment is induced by changes in the level of income or output. Harrod assumes that  $C_r$ , the desired marginal capital-output ratio, is constant (*i.e.* that it is constant given the rate of interest; it may vary in response to changes in the interest rate). At first glance this seems a useful simplifying assumption. It might be argued that, given a constant rate of interest, changes in the desired marginal capital-output ratio are likely to be random, and to be different in different industries so that not much distortion is introduced by assuming that, on average, the marginal capital-output ratio is constant. However, this assumption has several implications, and in particular it rules out any autonomous investment. Given the rate of interest all investment must be made in response to a change in national income. (Or, if there is any autonomous investment, it must supply the productive capacity that would otherwise be supplied by an exactly equal amount of induced investment so that there is no point in distinguishing autonomous investment and it can be included in induced investment.) Apparently, in the world described by Harrod's model even such things as housing investment are determined solely by changes in the level of output.

It is true that Harrod disarms criticism by suggesting that his identity may be rewritten  $GC = s - k$ , where  $k$  is autonomous investment, and  $C$  only includes investment not included in  $k$ . He then ignores  $k$  on the ground

that it is only a short-run phenomenon. "In the long run," says Harrod, " $k$  must disappear, for in the long run all capital outlay is justified by the use to which it is put."<sup>15</sup> However, Harrod's analysis showing that any small shock will cause a constantly increasing divergence of  $G$  from  $G_w$  is not a long-run analysis, but is concerned with the short run and with short-run forces. The consequence of  $G$  being greater than  $G_w$  is a trade cycle boom, not a Kondratieff upswing. In his formal analysis, whether for the short run or the long run, Harrod completely ignores  $k$ , and his conclusions largely rest on this omission. The instability in Harrod's model depends on the right hand side of his identity being constant. Harrod discusses whether or not  $s$  is a constant. He does not discuss at all whether or not  $s-k$  is likely to be constant.

It is also true, as Domar argues,<sup>16</sup> that if autonomous investment is assumed to be as productive as induced investment, and if we are only concerned with aggregates, then autonomous investment should be treated as a deduction from the induced investment that would have taken place in the absence of any autonomous investment. Thus, if autonomous investment is always smaller in magnitude than the amount of investment that would be induced by the simple working of the acceleration principle, the distinction between the two types of investment can be ignored, and all investment can be considered induced investment.<sup>17</sup> But this aggregative view is too simple and seriously distorts the significance of autonomous investment with respect to the acceleration principle. For example, what induced investment and desired increase in productive capacity would be replaced by an increase in investment in housing? Or again, if a new invention causes premature abandonment of existing capital equipment, would this not provide an additional demand for investment independent of any changes in output! Autonomous investment as a source of additional net investment cannot be ignored.

Let us then examine the effect of including autonomous investment in the model. In this context autonomous investment is any investment that is not directly induced by a change in the level of national income and output. It may be innovational investment, investment induced by shifts in demand, investment induced by the level of national income (as opposed to changes in its level), investment induced by changes in population or geographical location, and so on.<sup>18</sup> There are three possible alternative ways of treating this autonomous investment. The first, which we have already discussed, is to consider it as a deduction from induced investment. If this is done, then, as we have seen, the introduction of autonomous investment causes no change in Harrod's analysis. The second procedure is to consider (as for example Hicks does in *A Contribution to the Theory of the Trade Cycle*) that all autonomous investment is sterile in the sense that it does not replace at all the need or desire for any induced investment. This second approach is just as unsatisfactory as the first. A third approach is to consider

that some autonomous investment replaces the need for induced investment, and that some of it represents an actual addition to the amount of net investment desired. This is not only the most realistic approach but also the most general; the other two can be considered special (limiting) cases of it.

Let us then rewrite Harrod's equation  $GC = s - k$  as  $GC = s - \frac{I\alpha}{Y}$ . It is

obvious that if  $G_w$  is to be constant, the right hand side must be constant and hence (granting Harrod's assumption of a constant  $s$ )  $I\alpha$  must grow proportionally to income. That is, if the introduction of autonomous investment is not to affect Harrod's analysis, then that part of it which represents a net increase in the amount of investment desired must always grow at the same rate as income and fluctuate as the level of income fluctuates, *i.e.* it must be determined by the current level of income.

However, there is some evidence that in recent years autonomous investment has' tended to be constant or to grow at a constant rate, despite, at least, minor fluctuations in income and output.<sup>19</sup> If this is so, what effect does it have on Harrod's analysis? It does not vitiate the existence of  $G_w$ , though, if  $I\alpha$  is constant, or growing at a constant but slower rate than income,  $G_w$  will not be a constant rate, but will increase over time. However, a more truly autonomous investment which is independent of income will reduce the instability of  $G_w$ . Consider the result of an upward divergence of  $G$  from  $G_w$ . If  $G$  or the rate of increase of income increases while the rate of increase of  $I\alpha$  remains the same,  $\frac{I\alpha}{Y}$  will decline.

This will release a greater proportion of resources for induced investment and the deficiency of capital as a result of an increase in  $G$  will be much smaller. If, as a result of the increase in  $G$ ,  $s$  also rises, which we argued earlier was likely, then there may even be no deficiency of capital at all. A simple, somewhat unrealistic, example will make this point clear. Suppose in a hypothetical economy  $C_r = 1$ ,  $s = \frac{1}{4}$ , and  $I\alpha$  is growing at a constant rate such that  $\frac{\Delta I\alpha}{I\alpha} = 12\frac{1}{2}$  per cent. Suppose, too, that in a certain period  $Y = 98$  units and  $I\alpha = 12\frac{1}{4}$  units so that  $\frac{I\alpha}{Y} = \frac{1}{8}$ .  $G_w$  will then equal  $\frac{1}{C_r} \left( s - \frac{I\alpha}{Y} \right)$  or  $\frac{1}{8}$ .

If in the next period  $Y$  increases to 112 units it will have increased by an amount equal to  $G_w$ , and  $C$  will equal  $C_r$ . (Savings, equal to a quarter of income, will equal 28 units,  $I\alpha$  increasing at the assumed rate will equal 14 units, and other investment will equal 14 units so that  $C = 1 = C_r$ ). Suppose owing to some outside factor income rises instead to 120 units in the next period. Suppose too that, owing to the rise in  $G$ ,  $s$  rises to  $\frac{3}{10}$ , then  $C$  will still equal  $C_r$ . Savings will be 36 units,  $I\alpha$  will still be 14 units, and other investment will be 22 units so that  $C = 1 = C_r$ . If more realistic figures are used it is likely that  $C$  will still be somewhat smaller than  $C_r$  when  $G$  is greater than  $G_w$ . Nevertheless, the point remains that a level of

autonomous investment that is constant or increasing constantly despite changes in  $Y$ , coupled with a tendency for  $s$  to increase as  $G$  increases, will significantly reduce if not entirely eliminate the instability of  $G_w$ .

The third of Harrod's three key assumptions is that expectations of future income levels are based on events of the immediate past without any consideration of whether any changes observed are likely to be permanent or transitory. In the model in which  $G_w = \frac{s}{C_r}$ , Harrod assumes that entrepreneurs

act on the expectation that the most recent past rate of growth of income will continue into the future.<sup>20</sup> This assumption has been attacked by various writers.<sup>21</sup> Some have argued that it is more plausible to assume that businessmen expect the present level of income to continue in the future. Others have argued that businessmen will be so jubilant because of the correct forecast of an increase in demand and the consequent justification of their investment, they will expect even greater increases in the future. This may be particularly likely at certain stages of the upswing when profits are rising rapidly. On the other hand, some maintain that after the upswing has proceeded for a certain time expectations become pessimistic, entrepreneurs think the boom cannot last forever, and forecast an actual decline in national income.<sup>22</sup>

Except for the last mentioned, these various criticisms of the rate of expectations in Harrod's theory and formulations of alternative assumptions about expectations are not as damaging as they appear at first sight. Harrod has shown in "Notes" that changing the coefficient of expectations changes the value of  $G_w$  but does not change the instability of the equilibrium rate.<sup>23</sup> All that is needed for the existence of an unstable equilibrium rate  $G_w$  is an assumption of a constant zero or positive coefficient of expectations.<sup>24</sup>

A more serious criticism is that Harrod fails to make any distinction between short-run and longer-run expectations. A businessman may well expect a certain increase in, or increase in the rate of growth of, national income and demand for his product in the immediate future but consider this increase to be transitory. If entrepreneurs in general expect a divergence from the equilibrium rate of growth to be purely temporary and expect income soon to return to the level it would have attained without this temporary divergence, their investment behaviour will be such that the equilibrium rate of growth is much more stable than Harrod's model suggests. This can be demonstrated as follows. When, as is normal in Harrod's model, consumption is a constant proportion of income, savings and therefore investment are also, a constant proportion of income. Therefore, when income grows at the equilibrium rate  $G_w$ , investment must also grow at this rate so that  $G_w$  is also the equilibrium rate for investment. If a temporary disturbance, *e.g.* a temporary shift in the consumption function, changes the rate of growth of income, but entrepreneurs, believing it to be temporary, disregard it and continue to invest so that investment continues to grow at a rate equal to  $G_w$  when the temporary disturbance disappears income will return to a level which justifies

the investment made. This must be so because, in the absence of temporary disturbances, investment is a constant proportion of income. Investment has grown at the equilibrium rate, so that, as soon as income returns to its normal relationship, to investment, it must assume the value it would have reached if it had also grown at the equilibrium rate. Thus, the belief that the disturbance in the rate of growth of income was temporary is upheld; and investment made on the assumption that income will soon resume the path it would have taken in the absence of any disturbance is warranted. Thus, if entrepreneurs have the minimum of knowledge and experience necessary to distinguish between temporary and longer-run changes in the rate of growth of income, and if, when a temporary change occurs, treat it as such by investment behaviour appropriate to the longer-run trend in income, then temporary disturbances from the equilibrium rate of growth will not cause ever increasing divergences and the instability of  $G_w$  is greatly reduced.

## 22.4 Conclusion

We have seen that the instability of  $G_w$  in Harrod's model depends on the rigidity of three key assumptions. It adds to rather than detracts from the realism of Harrod's model to relax these three assumptions so that (i)  $s$  may vary as the rate of increase of income changes, (ii) the existence of autonomous investment is recognized and (iii) entrepreneurs are considered to distinguish between temporary and longer-run changes in the rate of growth of income. If any one of the three key assumptions is relaxed in the way indicated above, the instability of  $G_w$  is reduced. If all three are relaxed the equilibrium rate of growth may well be a stable equilibrium for long periods of time.

## Notes

1. A large part of this article is based on material included in a thesis submitted for the degree of Ph.D. at the University of California, Berkeley.
2. *Economic Journal*, Vol. XL (March 1939), pp. 14–33. The ideas in this article were elaborated in *Towards a Dynamic Economics* (Macmillan, London, 1948) and “.Notes on Trade Cycle Theory”, *Economic Journal*, Vol. LXI (June 1951), pp. 261–276. Hereafter these three works will be referred to as “Essay”, *Towards*, and “Notes” respectively.
3. *Towards*, p. 87.
4. See H. Rose, “The Possibility of Warranted Growth”, *Economic Journal*, Vol. LXIX (June 1959), pp. 313–332.
5. *Towards*, p. 81.
6. *Ibid.*, p. 85.
7. *Ibid.*, p. 87.
8. See H. Rose, *op. cit.*, pp. 319–20.
9. In an article published since this one was written Harrod himself rejects this equation of Rose's as a useful description of investment behaviour. His reasons for doing so are very similar to those we give below. See “Domar and Dynamic Economics”, *Economic Journal*, Vol. LXIV (September 1959), p. 459.

10. It is true that the use of a planning period introduces what Rose calls a lag in the investment function. As plans are not changed during the period the behaviour 'of income during the period cannot affect investment in that period but only in the next.
11. It is demonstrated in the previous chapter that these three assumptions plus the identity investment equals savings and an assumption placing wide limits on the parameters constitute a formal version of Harrod's model.
12. Some might wish to argue that the consumption function should be lagged. Lagging this function would strengthen our argument, as it would cause the relationships between savings and current income to vary in the same direction as  $G$ .
13. *Towards*, p. 79.
14. *Towards*, p. 89. In the context short period means the period relevant to trade cycle analysis as opposed to secular growth or stagnation. It is argued below that Harrod's analysis of the relationship between  $G$  and  $G_w$  is short-period analysis in this sense.
15. *Towards*, p. 79.
16. See "Expansion and Employment", *American Economic Review*, Vol. XXXVII (March 1947), pp. 34–35.
17. It is ironical to note that Harrod's unused equation  $G_w C_r = s - k$  explicitly rules out this loophole as it implies that autonomous investment does not raise productive capacity.
18. It does not include investment induced by a change in the interest rate. This is allowed for by a change in  $C_r$ .
19. See J. W. Nevile, "Professor Hicks's Theory of Investment and Post-War Investment Figures in Australia and the United States", *Economic Record*, Vol. XXXIV (August 1958), pp. 249–53.
20. See "Notes", p. 273.
21. See D. Hamberg, *Economic Growth and Instability* (New York, 1956), p. 110.
22. This theory of expectations probably had more validity before the Second World War, and the various full employment acts. The modern equivalent, that businessmen expect to be temporary a rate of increase of income much greater than that which is normal, is discussed below.
23. See pp. 271–75.
24. Where the coefficient of expectations is defined as expected change in income over the most recent past change in income.

# 23

## A Reply to Dr. Inada

*J. W. Nevile*

As Dr. Inada has pointed out, in the case of the flexible accelerator version of Harrod's model my article considered only the warranted rate of growth and deviations from it. Rightly or wrongly, this seemed to me to be the crux of Harrod's model. However, the other possibility, in which the initial rates of growth are away from the warranted rate but moving towards it, should also be considered. Dr. Inada's analysis is correct as far as it goes, but it leaves unanswered the most important question. He shows that the actual rate of growth converges to the warranted rate if the starting-point belongs to a certain non-empty set, but leaves open the question whether or not this set is a curve. It can be shown that the solution to the difference equation in question converges to its equilibrium value (*i.e.*, that the actual rate of growth converges to the warranted rate) if, and only if, the initial values lie on a curve.<sup>1</sup> Thus, the formal instability of Harrod's model remains.

It is of value to spell out, in English, what has been proved. In the mathematical formulation of Harrod's model the sizes of the actual rates of growth of output in the first two periods determine the values of all subsequent rates of growth of output. If the rate of growth of output in the second period is greater than that in the first period and is also greater than the warranted rate of growth, then the rate of growth in subsequent periods will continually increase without converging to any limit. If the rate of growth in the second period is greater than that in the first period, but smaller than the warranted rate of growth, future rates of growth will follow one of two patterns. Either they will increase continually without limit, as in the first case, or else before they reach the warranted growth rate they will start to decline and then decline continually without converging to any limit. Which of these two patterns occurs depends on the relationship between

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the rate of growth in the first period and that in the second. When the latter is large compared with the former future rates of growth increase continually. A rate of growth in the first period almost as large as that in the second gives the case in which the rate of growth eventually declines, still assuming that both the initial rates of growth are smaller than the warranted rate.<sup>2</sup> There is a boundary line between the initial conditions belonging to each of these two patterns. If the rates of growth in the first two periods lie exactly on this boundary line the rate of growth converges to the warranted rate. Thus, the only situation in which the actual rate of growth will converge to the warranted rate is when the initial conditions lie exactly on this boundary line. The results when the rate of growth in the second period is less than that in the first are symmetrical to those outlined above. Either future rates of growth will decline continually without converging to any limit or else, before they reach the warranted rate, they will start to increase and then increase without limit. Again the initial conditions for each case are separated by a boundary line and the rate of growth will converge to the warranted rate only if the rates of growth in the first two periods lie exactly on this line.

Although the formal instability of Harrod's model cannot be challenged, there could be an appearance of stability. From some initial positions the rate of growth may approach the warranted rate of growth for a number of periods before either crossing or turning away from it. This could give the appearance of stability and, indeed, a certain measure of stability in practice.

## Notes

1. See a forthcoming paper by P. E. Lush entitled "The Stability of Harrod's Growth Model of an Economy," to be published in *The Journal of the Australian Mathematical Society*. Vol. 5 (1965).
2. The word "almost" is meant to be inexact. The larger the initial rates of growth, the greater the first must be compared with the second to give the case in which the growth rate eventually declines.

# 24

## Expectations, Lags and Particular Parameter Values in Harrod's Dynamics

*J. W. Nevile*

*Two recent books on Harrod's work and Harrodian themes mentioned two articles on Harrod that I published in the early 1960s. Harrod himself wrote a letter to me commenting on the articles. This letter throws some new light on how Harrod, at least at the beginning of the 1960s, regarded the role of expectations, lags and the extent, if any, that his results depend on particular parameter values. The most startling thing in the letter is Harrod's admission that his fundamental instability principle may depend on the sizes of the multiplier and acceleration coefficient falling within certain ranges.*

In recent years, there has been a renewed interest in the work of R.F. Harrod and especially in his work on economic dynamics. Two recent books, Besomi (1999) and Rampa, Stella and Thirlwall (1998) mention my work on Harrod published in the early 1960s. Both Nevile (1960) and Nevile (1962) are correctly included in the literature of the time which recognised that Harrod's dynamic analysis had implicit assumptions about expectations and tried to make these explicit in a way that was congruent with the character of Harrod's analysis. Then the stability of the growth rate in the resulting models was examined.

However, one of the articles went further than this and examined the effects of relaxing Harrod's assumptions about entrepreneurial and consumer behaviour. Harrod, himself, wrote a letter to me commenting on the articles.<sup>1</sup> These comments throw light on some of the issues that have been much discussed in the literature of the last quarter of the twentieth century. They give a new insight into his position, at the beginning of the 1960s, on the role of lags and reinforce one existing interpretation of his views on expectations. The most exciting point is a surprising window into his views

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on the need, or lack of it, to constrain the values of the parameters in the model in order to produce instability and/or the trade cycle. Each of these three points will be discussed in turn. Other comments in his letter set out some of his well-known views and are not discussed in this paper.

To set the scene, let us remind ourselves of the context in which Harrod was writing and the essence of what he thought was his contribution. In the middle of the twentieth century there had been a gap of about 100 years since dynamic economics had been part of the main corpus of economics. Trade cycle theory had certainly been significant, but it had been ad hoc with little connection with mainstream economics. Moreover, there was no widely accepted theory of the trade cycle, but a multitude of theories, until Hicks's (1950) contribution became the dominant textbook explanation in the 1960s. Nevertheless, the resurgence in interest in dynamic economics started with trade cycle explanations, not the growth theory which had loomed large in the writings of the classical economists.

Two approaches emerged in the 1930s and 1940s. Both flowered by combining the multiplier and accelerator, but otherwise were very different.<sup>2</sup> They even had different definitions of dynamic economics and were inclined to regard the other as still being static in important ways. On the one hand, mathematical economists and econometricians such as Kalecki, Frisch, Samuelson and Tinbergen constructed what were essentially difference equation models which, if suitable values of the parameters were chosen, produced cycles around an equilibrium level of income. They, implicitly or explicitly, adopted Hicks's definition of dynamic economics as analysis in which there are lags so that it is necessary to date variables.

On the other hand, for Harrod the essence of dynamic economics was that the variables to be explained were rates of change and that the trade cycle had to be viewed as an oscillation around an equilibrium rate of growth. The following quotations sum up the differences nicely.

In a League of Nations volume on trade cycles, later reprinted by the United Nations, Haberler commented on models that are based on the interaction of the multiplier and accelerator. He said: 'The technique of the theoretical analysis of these relationships has been greatly improved in recent years. The analysis has become more explicitly dynamic, that is to say the relationships in question are all interpreted so as to imply time lags; the magnitudes are being carefully "dated"...' (1946, p. 473). And, in a footnote to the above, 'Mr Harrod's system is incompletely dynamized; he introduces the dynamic acceleration principle but he still interprets the multiplier as an instantaneous relationship'.

Harrod was equally black and white in his view: 'In Dynamics, the fundamental conditions will themselves be changing, and the unknowns in the equations to be solved will not be rates of output per annum but increases or decreases in the rates of output per annum' (1948, p. 4). And in discussing Parts III & IV of Hicks's *Value and Capital*, which are entitled 'The

Foundations of Dynamic Economics' and 'The Working of the Dynamic System', Harrod says that they only 'allegedly deal with dynamic economies' (1948, p. 9).

### 24.1 Lags: Inherently Misleading or Just Misused?

Harrod spent a great deal of energy pointing out the essential difference between the two approaches and arguing that his definition of dynamic economics and type of analysis was more fruitful than the rival one. Harrod (1948) Chapter 1, (1951) *passim*, and (1960) paragraph 7 are all examples of this sort of activity but the list is by no means exhaustive. However, the fact that Harrod sharply distinguished his model from both that of Hicks (in *Value and Capital*) and that of Samuelson (1939) and other similar difference equation models, did not necessarily mean that lags had no part to play, even in his basic instability theorem.

He certainly often wrote as if lags belonged to a second stage of the analysis, after the basic cause of the instability in capitalist economies had been established. For example in Harrod (1948) he said: 'It is far from my purpose to give a finished theory of the trade cycle. Lags, psychological, monetary and other factors, no doubt play their part. I should suggest that no theory can be complete which neglects the fundamental causes of instability expressed in the equations which have been set out' (p. 89). Moreover, at various places (e.g. Harrod 1960, p. 279) he maintained that the 'fundamental concept in dynamic economics ... is the rate of increase that obtains at a *given point in time*' (emphasis in the original). Nevertheless, as his critics pointed out, he was not consistent. He employed lags himself, not just in detailed trade cycle theory, but in establishing his 'fundamental dynamic theorems'. In early work he explicitly acknowledged his was a form of period analysis, for example defining  $G$  as the difference in output in two successive years divided by the level in output in one of those years and stating that 'we suppose the period to be short' (1939, p. 16) – short not instantaneous. In later work he used dated variables even more, and explicitly related what happened in a period to the outcome of the previous period (see, for example, his 1959 *Economic Journal* article, p. 459).

The first substantial comment in his letter to me is one approving my difference equation formulation of his theory which was later published in the June 1962 issue of the *Economic Journal*. This suggests that it was not lags *per se* but the way they were used to which he objected. There are several reasons why Harrod might be expected to look more favourably on my model than on most of those seeking to give a formal mathematical expression of his theory. First, the variable to be explained is a rate of growth. As was pointed out above, Harrod thought that the essence of dynamic economics was using rates of change as the dependent variables. Secondly, the model published in 1962 not only had the usual rigid accelerator version of Harrod's

model but also a flexible accelerator version. It seemed to me at the time, and still does, that the discussion in Harrod (1948) implied that he was using a flexible accelerator. Along with a statement about his assumption relation to expectations, the use of a flexible accelerator was made explicit a few years later.

In my analysis I assumed that on the line of 'warranted' advance the existing condition of stocks and equipment was satisfactory and that the size of the current order was based on an extrapolation of the rate of increase of put-through in the recent period. But in the fields of centrifugal forces lying on either side of the warranted line, I assumed that orders are also influenced in the upward field by a shortage of stocks and equipment and in the downward field by their redundancy. (Harrod 1951, p. 273)<sup>3</sup>

Thirdly, as the preceding quotation shows, my assumption about expectations was the same as that made by Harrod, i.e. that 'entrepreneurs expect the most recent past rate of growth to continue in the next period' (1962, p. 368). However, Harrod (1951) did point out that this expectations assumption was only a sufficient condition, not a necessary one, for his results to hold.

These three points are probably enough to explain Harrod's approval of my 1962 model, but I like to think that one can use that approval to support a particular interpretation of Harrod's views on difference equation models. Kregel (1980) and Besomi (1998) both stress that Harrod was concerned with what was happening at a single point in time. Besomi has set out a number of arguments Harrod used to reject the difference equation models of Samuelson and others. He gives considerable weight to three in particular. One is that the most fundamental part of dynamics is concerned with the analysis of a system of mutual relationships and especially the determination of the equilibrium rate of growth (Besomi 1998, pp. 115, 118–19). The second is that discussion of this equilibrium growth rate requires 'an examination of the state of the system at a single given instant' (Besomi 1998, p. 115). Thirdly, for Harrod, the true cause of the cycle was not to be found in errors or frictions (which he considered were the cause of lags) but in the instability of equilibrium which meant that after any disturbance the economy did not quickly return to equilibrium (Besomi 1998, pp. 112–15).

There can be no doubt that Harrod held strongly to the first and the third of these reasons for rejecting the work of Samuelson, Frisch and others. For example, the first is why he considered the dynamic sections of *Value and Capital* only 'allegedly dynamic' and the third he stated again and again was a 'fundamental dynamic theorem'. However, I would argue that the second point was adopted as much as a matter of convenience as a fundamental point.<sup>4</sup> It has already been noted above that Harrod himself actually used a period, not an instant in time, in establishing his fundamental theorems.

He argued that there was some force in the view that the acceleration principle itself implied a lag, but he 'deliberately neglected' the study of lags 'to get the clearest possible view of the forces determining the trend and its influence as such' (Harrod 1939, p. 20) and that 'where you get steady movement, a lag has no meaning' (Harrod 1948, p. 132). The interpretation that Harrod concentrated on simultaneous rather than lagged relationships as a matter of convenience is strengthened by his approval of a fully-fledged third-order non-linear difference equation model which established that Harrod's assumptions, properly understood and carefully formalised, led to an unstable equilibrium rate of growth.<sup>5</sup>

## 24.2 Expectations

In his 1939 *Economic Journal* 'Essay' and his 1948 book, Harrod was rather vague, to say the least, about expectations and entrepreneurial decision-making. In the book, for example, the closest he comes is to say that when 'goods in the pipe-line or the equipment [are] insufficient to sustain existing turnover ... orders will be increased' (Harrod 1948, p. 85). He even makes it explicit that he is not sure whether this is because entrepreneurs expect next periods' income and demand for their output to be the same as this period's or whether, as is more fitting in a dynamic analysis, they expect next period's growth rate in output to be the same as this period's (Harrod 1948, p. 86).

This vagueness was seized upon by critics and in 1951 Harrod set out much more precise assumptions. As indicated above Harrod's normal assumption was that entrepreneurs made investment decisions on the basis of 'an extrapolation of the rate of increase of put-through in the recent period' (Harrod 1951, p. 273). However, he made it quite clear that this only related to induced investment. In the letter to me his reaction to my suggestion that entrepreneurs might take a longer view is to say that, if this occurs, the effect is to shift some investment from the induced to the autonomous category. This repeats what he said, in Harrod (1951, p. 267) where the proportion of autonomous investment is represented as a variable varying continuously from one in an extremely short period to zero in an extremely long period. This reinforces the view that concentrating on an instant in time was adopted for convenience since if it is taken to its logical extreme it implies zero induced investment, whereas induced investment is at the heart of Harrod's dynamic analysis.

In his later writings Harrod used expectations to make what he thought an important point. Not surprisingly, many thought that the equilibrium rate of growth derived in the 1939 'Essay' and the 1948 book was extremely unstable. Harrod's exposition made this very likely. Consider, for example,

G [the actual growth rate of output] is a quantity determined from time to time by trial and error, by the collective trials and errors of vast numbers

of people. It would be great luck if their collective appraisals caused them to hit *precisely* on the value  $Gw$  [the equilibrium growth rate]. But if they do not their experience will tend to drive them farther and farther from it. (Harrod 1948, p. 86; emphasis added)

The idea of great instability, if not the word knife-edge, was probably inevitable.<sup>6</sup>

However, Harrod objected strongly to the knife-edge terminology, and with good reason since such extreme instability is not a characteristic of economies in the real world (Harrod 1973, pp. 32–33). He maintained that because of frictions in the system a very small deviation would not produce instability. Harrod (1970) identifies these frictions as ‘degree of conservatism, sensitivity to current changes day by day, uncertainties about the future, sensitivity to changes, changes of expectations, the kind of phenomena that affect expectations etc’ (p. 740). The view that Harrod lumped expectations together with lags as a complication to which one does not have to pay too much attention when deriving his fundamental theorems is correct. He regarded both as frictions or imperfections. However, expectations did become important in Harrod’s thinking as a way of reducing the instability in the system to a realistic level. In the early 1960s, this idea appears still to have been embryonic but it was there. A decade later it was fully developed.

### 24.3 Parameter Values

The last point to be noted in Harrod’s letter is very straightforward and can be dealt with most briefly. Yet it is the most surprising of all his points. One of the reasons Harrod gave for the superiority of his approach to dynamic economics over the difference equation approach was that it did not rely on any particular parameters to produce instability. For example, in comparing his approach to that of Samuelson, he said:

In Professor Samuelson’s model there may be a run-away movement towards infinity or an explosive cycle or a damped cycle or just a onceover movement to a new level; which of these happens depends on the coefficients assigned to the propensity to consume and to the capital requirement induced by the increment of output (or the accelerator ...). On my system there will be a run-away movement to infinity whatever the values of these coefficients. (Harrod 1951, p. 263).

More generally, in Harrod (1948) he stated in the lead-up to his fundamental dynamic theorems: ‘I believe that we are on the way to certain basic truths, which are independent of complications that have to be introduced when we seek to build up a more detailed picture of the whole process’ (p. 80).

The values of particular parameters (in this case the size of the accelerator) along with lags are the most important of these complications. These views were not just expressed in his early work on dynamics. For example they were put at greater length in Harrod (1960, p. 277).

Yet, in January 1962, Harrod wrote, 'I still like to think that my formula provides the starting point for considering these matters and that on probable estimates of the values involved there is likely to be instability'. This statement comes at the end of the letter. Harrod had argued that, although each of the three points I raised in the 1960 article reduces the degree of instability, none by itself will eliminate it. Now at the end he admitted that it is theoretically possible that the combined effects of all three could do so. Nevertheless, he considered it unlikely that any realistic estimates of the parameters would be such as to remove the stability altogether.

At one level this is a major change in his position, but the practical effect is small. The change in what is theoretically possible does not affect Harrod's equilibrium rate of growth and he can keep his conviction that in a capitalist economy, of the type existing since the industrial revolution, this equilibrium growth rate is unstable.

#### **24.4 Conclusion**

Harrod's letter gives interesting insights into two aspects of his analysis: the difference between his dynamic analysis and that of the mathematical economists and econometricians; and the universal nature of that analysis. Kregel and Besomi argue that Harrod thought his fundamental dynamic equations were about rates of growth in an economy at a point in time, and therefore it was completely different from the use of periods, lags and difference equations that was the predominant form of dynamic analysis from the mid-1930s to the mid-1950s. There is no doubt at all that Harrod thought his analysis 'radically different' (1951, p. 271). But this was not because period analysis was involved in one case but not in the other. His approval in the letter of a third-order non-linear difference equation as embodying a formal version of his analysis shows that. The difference was that Harrod was concerned to establish that there was an equilibrium rate of growth in a capitalist economy but that, unlike a static equilibrium, it was inherently unstable. This instability was a necessary cause of the cycle. Establishing this came first.

Harrod's comments on expectations in the letter were basically the same as those he had made a decade earlier. However, in 1961, Harrod was more open to the implications that this approach to expectations reduced the instability of the equilibrium growth rate.

His last comment, that expectations along with particular values of some coefficients could remove this instability, is the bombshell in the letter. But, since it is immediately qualified by the statement that such values are



unlikely, the resulting damage is not great. Even without the qualification, the bombshell leaves untouched the most basic difference between Harrod and Samuelson, and Frisch and Hicks about the essential characteristics of dynamic economics. Harrod dismissed their work as only pseudo-dynamic economics because:

what we ought to be looking for, beyond or beneath the oscillations, as the proper or normal effect of continuing changes, is a steady rate of change in each of the dependent variables. It may be that in fact in an advancing (or declining) economy there is a persistent failure to achieve those steady trends of increase which the changing fundamental conditions require, just as in a generally static economy there may, owing to the continued impact of detailed changes or some oscillation, be persistent failure to achieve the stable equilibrium which fundamental conditions indicate. But just as it is important to know what the stable equilibrium would be, even if it is not achieved from moment to moment, so in the dynamic field it is necessary to know what the steady lines of advance would be, as a basis for analysing why actual lines of advance depart from them and behave as they do. (Harrod 1948, pp. 9–10).

The existence of an equilibrium growth rate is not challenged. The demonstration that it is unstable now requires more empirical assumptions, though only ones which Harrod believed would be 'safe', a word he used in a very similar context. The change, from a theoretical model which holds irrespective of the values of the parameters to one which holds for plausible values of the parameters, is a major change in theoretical structure. However, it may not be of great consequence in analysing specific economies and formulating policy advice. Harrod was not interested in theorising about hypothetical economies that might not bear any relationship to those that actually existed. He believed that his analysis was 'of urgent and vital relevance to the immediate problems' of specific economies (Harrod 1948, p. vi). The comments in his letter do not contradict that belief.

## Notes

1. The text of the letter is contained in the appendix to this paper.
2. See Besomi (1998) for a longer description of the differences between the two.
3. Harrod uses the word 'put-through' because he is talking about the expectations of a representative entrepreneur, whereas I make an assumption at the macro level with the representative entrepreneur approach only implicit.
4. Pugno (1998) takes a stronger position. He argues the lags are a necessary part of the mechanism which produces instability and that Harrod knew this. Pugno points to the 1951 article in which Harrod both said that current and recent

conditions determined induced investment in his model and accepted the proof in Alexander (1950) that 'there will be a run-away movement to infinity whatever the value of [the] coefficients' (Harrod 1951, p. 263).

5. Harrod's revision of his treatment of expectations discussed in the next section also supports this view that he adopted a simultaneous approach as a matter of convenience.
6. Actually, in the 1939 'Essay' (p. 26), Harrod suggests that a deviation from the equilibrium rate of growth could have to last as long as 6 months before a divergence from that equilibrium rate of growth occurred, but this was generally overlooked.

## Appendix

15/1/62

Dear Mr Nevile,

I was so interested and gratified to learn that you have been doing this work on my equation. I like your mathematical formulation (in typescript). [This was published unchanged as Nevile, 1962.]

As regards your article [Nevile, 1960] I think that I cannot quarrel with your statement of the tendency of any relaxation in the three assumptions to lead us nearer stability.

I am not sure, however, that I take your point that likely changes in the rate of growth being less than a trebling (p. 482 towards bottom) affects my argument. My point is that to get stability people must consume less out of a higher income, unless  $s$  is not higher than  $G$  and in that case they must save the *whole* of the increase of income. This is independent of whether the increase involves a trebling of  $G$  or a rise in  $G$  by 50%, or any other amount, I think that you miss the point that a smaller change in  $G$  entails a smaller increase in income. I think that my argument is independent of how great the change in  $G$  is.

If, as you rightly suggest,  $s$  is flexible and may rise with an increase in  $G$  this reduces the centrifugal force but does not, I think, dominate it, as you suggest in the last paragraph ending on p. 483.

You are right in thinking that the greater  $k$  the less the centrifugal force. But the presence of  $k$  only serves to eliminate the centrifugal force if  $s-k$  is less than  $G$  and one has to consider in what circumstances this, on a realistic appraisal, is likely to be so.

Taking a longer period view by entrepreneurs (your third point) operates in the same way as increasing  $k$ . Thus the drift of your argument is right.

I still like to think that my formula provides the simplest starting point for considering these various matters and that on probable estimates of the values involved there is likely to be instability.

Yrs sincerely,

Roy Harrod

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# 25

## Accumulation and Structural Disequilibrium

*Joseph Halevi*

### 25.1 The Background

In contemporary developed economies, capitalist and socialist alike, goods are produced by means of machines minded by labor. Only in the early stages of the capitalist mode of production could commodities be thought of as made by an unequipped workforce. The economic theory of modern societies must begin, therefore, with a definite hypothesis about the material structure of the flow of output. In present times, the latter is always produced by machinery a part of which goes to reconstitute and expand the stock of capital goods. From an historical perspective, a society centered on machinofacturing generates – as argued by Marx and acknowledged by other scholars (Rosenberg, 1972) – a specialization of production in which the elements serving as capital accumulation are largely unfitted for personal consumption.

The subdivision of the economy into two distinct branches – the capital and the consumption goods sectors – captures two important phenomena: firstly, it enables the observer to comprehend the process whereby production for accumulation implies a social and technical organization different from the one oriented towards self-consumption (Pasinetti, 1974; 1983); secondly, it spells out the fragmentation of control which specifically characterizes capitalist production. The analytical importance of drawing an imaginary, yet conceptually concrete, partition between means of consumption and means of production has been best explained by Karl Marx:

[T]he production of means of production is divorced . . . from the production of commodities whose means of production they are. And the latter stand opposed to every producer of commodities as commodities which

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Revised from *Beyond the Steady State: A Revival of Growth Theory*, 264–288, 1992, ‘Accumulation and Structural Disequilibrium’, by Halevi, J. With kind permission from Palgrave Macmillan for publishing. All rights reserved.

he does not produce but buys for his particular process of production. They come from branches of production which, operated independently, are entirely divorced from his own, enter his own branch as commodities and must therefore be bought. The material conditions of commodities production face him more and more as products of other commodities' producers, as commodities. And to the same extent the capitalist must assume the role of money-capitalist, in other words there is an increase in the scale on which his capital must assume the functions of money-capital (Marx, 1974, Vol. II, p. 34).

It can be said then, that in Marx there is a strong link between the sectoral and the monetary dimensions of capitalist accumulation, in the sense that a monetary capitalist economy can spring only from a structurally specialized system of production. In this context, the two components of Marx's analysis – the creation of surplus value and the sectoral structure of production – are the factors which allowed the intellectuals of the Socialist movement to debate at the turn of the century issues that were to achieve prominence in *bourgeois* economics only after the publication of Keynes's *General Theory* and after the shattering experience of the Great Depression. Indeed, the 'breakdown controversy' (Sweezy, 1949) with its emphasis on the schemes of reproduction, anticipated by more than fifty years the discussion about the stability of growth models. Compared to the modern discussion, which remained confined to the purely formal and mechanical aspects of the models, the earlier debate attempted to articulate the actual configurations capitalist accumulation might lead to.

The absorption by the European Social Democrats of Marx's structural division of the social product led to significant insight into actual historical processes.

An important instance of this fact is found in Lenin's reformulation of Marx's schemes of reproduction in his critique of the Narodniki (Lenin, 1968; Dadayan, 1981). First, he established that machines producing consumption goods have, by and large, to be produced by a different capital goods sector – i.e., by a sector producing capital goods only for the machine industry. Then, he argued that insofar as the formation of a proletariat – no matter how poorly paid – led to a *market* demand for wage goods, industries supplying equipment to the wage goods sector would have to be built. This in turn would bring about the formation of the 'heavy industry' needed to produce that equipment. Hence, by ascribing to capitalist production an inter-industry structure *not* applicable to petty commodity production, Lenin could maintain that capitalism was the dominant economic formation in Tsarist Russia. The methodological implication is that an interindustry system is not analytical just on the formal level while being purely descriptive in its content. Instead an interindustry matrix already contains a theoretical statement about the concrete stage of development to which it is applied.

Marxian economics grasped the issues of growth, cycles and crisis, far in advance of its *bourgeois* counterpart. At the same time, certain major aspects of modern growth theory can be quite important for the Marxian *Fragestellung* itself. My intent is to inquire into these. However, I do not propose to establish parallelisms and similarities between the Marxian analytical framework and contemporary macrodynamic models. This has already been accomplished and the reader can find guidance in two books by Stephen Marglin (1984) and Michio Morishima (1985). Here I shall argue that Harroddian theory and Traverse theory – the latter developed by the late Sir John Hicks (1965, 1985) and by Adolph Lowe (1976) – should be blended with components of contemporary Marxian thought to produce an economic analysis that goes well beyond the steady state. The gist of my thoughts is as follows.

Sir Roy Harrod's conception of an immanent disequilibrium between the warranted and the natural growth rates is a strong theory of the breakdown of capitalist investment since it envisages the possibility of a chronic depression. His approach encompasses and reconciles the two main strands of the Marxian debate over the future of capitalism: namely, the strand stressing the role of effective demand (Luxemburg, 1968; Kalecki, 1971, 1976) and that emphasizing the role played by sectoral disproportionalities in hampering a steady process of capital accumulation. Furthermore, in Harrod the breakdown in investment does not come about in a deterministic way, as was often the case in the Marxian debate at the turn of the century. For Harrod certain historical conditions, concerning the degree of development of the productive apparatus, have to be fulfilled in order to obtain an investment crisis leading to a depression. In this study I will suggest that Harroddian disequilibrium becomes relevant when a capitalist economy reaches in the course of its development a situation in which '[it] finds itself so well equipped with capital that its marginal efficiency is zero and would be negative with any additional investment,' so that 'entrepreneurs will necessarily make losses if they continue to offer employment on a scale which will utilise the whole existing stock of capital' (Keynes, 1936, p. 217). In Marxian terms this means that the level attained by the stock of equipment as a result of past accumulation no longer allows for a continuing expansion of capital.

Harroddian theory discusses the conditions leading up to a state of disequilibrium. Traverse analysis deals with the actual state of disequilibrium. The new method proposed by Hicks in 1965 and reformulated in 1985 develops a critical perspective toward the 'Keynesian ideology'; that is, toward the view that demand management in the aggregate does represent a lasting instrument for achieving the stability of the (capitalist) system. From a Marxian point of view the Traverse-based critique of Keynesianism is important because it is structurally grounded. Disequilibrium stems from an imbalance in the composition of the stock of capital distributed among the consumption and the capital goods sector. In the earlier Marxian debate, disproportionalities were due virtually to lack of appropriate linkages between sectors. In the

case of the Traverse the imbalance between sectors is due to a disequilibrium between the growth rates of the aggregate stock of capital and that of the labor force. The method then suggests that indiscriminate demand management policies cannot prevent the emergence of this form of disequilibrium.

Thus, in spite of its outward appearance as a set of quantitative relations, Traverse analysis raises crucial questions about the kind of social relations of production capable of sustaining the goal of full employment. Moreover, the method of the Traverse stresses the analytical importance of linking the stability of capital accumulation to the possibility of keeping full employment through time. An economy well endowed with capital stock which is unable to secure full employment, is also an economy where the process of capitalist *productive* investment is in crisis.

## 25.2 Limitless Accumulation and Harroddian Disproportionality

Marx's schemes of reproduction single out the capital goods sector as the branch propelling real capital accumulation. They do not, however, specify why units in the consumption goods sector should accept the leadership – in terms of investment decisions – of the capital goods sector. To a very large extent the answer to this question comes from a study written by Geoff Harcourt (1963) within the framework of a Kaldorian growth model. The study showed that, with full capacity output, firms producing consumption goods are passive *vis-à-vis* firms operating in the capital goods sector. The profitability of investment in the former came out to depend on the investment plans in the latter. The essence of the argument is that profitable effective demand for the consumption goods sector can come only from the expansion of investment – hence of employment and of the wage bill – in the capital goods sector. With a steadily expanding profitable effective demand crises would occur mostly because of disproportionalities preventing a smooth transformation of outputs into inputs.

This result seems to justify Tugan Baranovski's approach. Yet Tugan did not inquire into the specific conditions under which his process of limitless accumulation would hold. This is precisely what Harrod's method enables us to do, since it identifies the circumstances in which a growing rate of accumulation in the capital goods industry cannot be maintained indefinitely. In his own words:

The system cannot advance more quickly than the natural rate allows. If the proper warranted rate is above this, there will be a chronic tendency to depressions; the depressions drag down the warranted rate below its proper level and so keep its average value over a term of years down to the natural rate. But this reduction of the warranted rate is only achieved by having chronic unemployment (Harrod, 1939, in Sen, 1970, p. 61).

In the Marxian two-sector scheme, the higher the percentage of capital goods replowed into the department producing means of production, the higher is the warranted rate. Hence, Harrod's argument amounts to saying that if the rate of reinvestment is persistently above the growth rate of labor productivity and of population, a point will be reached where there would not be enough workers to operate all the machines. This problem was seen before Harrod by Kaldor, who observed that in a developed economy the output of machines can be increased very rapidly in relation to the available labor force, so that 'excess capacity in equipment will make its appearance, which in turn will lead to a breakdown in the demand for investment' (Kaldor, 1938, in Kaldor, 1960, p. 113). There is therefore a limiting condition, determined by the past rate of accumulation, in which the problem of effective demand resolves itself into a *lack of effective demand for capital goods*. This condition stems from a basic imbalance overlooked by Tugan Baranovski – i.e., the gap between the employment capacity generated by accumulation and the level of employment allowed by the population of working age. Recently Edmond Malinvaud (1980) has synthesized the disequilibrium which may ensue from such an imbalance in terms of the inequality:

$$\begin{aligned} & \text{Productive Capacity} > \text{Average Labor Productivity} && \text{(i)} \\ & \times \text{Total Labor Force} \end{aligned}$$

Technical change cannot be relied upon to correct the above inequality for two reasons. The first – mentioned by Kaldor in his 1938 study – is that only by a fluke can technical change be so much labor saving as to guarantee the full employment of labor and the full capacity utilization of machinery. The second – which can be deduced from Harrod's 1939 essay – is that the conditions for the warranted rate to outpace the natural rate depend on the degree of industrialization which is in turn positively related to technical progress. The level of industrialization determines also the potential rate of accumulation via the relatively high propensity to save:

It is often felt that a high propensity to save should warrant a great increase in the output of wealth and this induces an extreme aversion to accept Keynes's view that excessive saving in the modern age is hostile to prosperity. The feeling is justified to the extent that a higher propensity to save does, in fact, *warrant* a higher rate of growth. Trouble arises if the rate of growth which it warrants is greater than that which the increase of population and the increase of technical capacity render permanently possible. And the fundamental paradox is that the more ambitious the *warranted* rate is, the greater the probability that the actual output will from time to time, and even persistently, fall below that which the productive capacity of population would allow (Harrod, 1939, in Sen, 1970, pp. 62–3).



It follows that the increase in the economy's ability to generate a surplus as a result of technical change should augment the potential gap between the two growth rates. Thus a Harrodian crisis is a far more concrete possibility than Tugan Baranovski's boundless accumulation. The importance of Harrod's method in relation to the Marxian question of cyclical growth and crisis is, in this context, twofold. Firstly, the presentation of dynamic movements in terms of the dichotomy between the warranted and the natural rates reduces in a very significant way the analytical value of Tugan's hypothesis. Indeed, even if capitalists were to reinvest as much as possible in the capital goods sector – thereby constantly lowering the real wage rate – the economy is likely to be growing at a warranted rate much higher than the natural one, as long as labor remains a necessary input in the production process. Hence, sooner or later, the system's expansion will find itself bound by Malinvaud's inequality (i). Secondly, and consequently, the question is no longer whether or not the capitalist economy can grow indefinitely, but whether or not the dynamic movement of accumulation is regulated by the cyclical expansion and contraction of the Reserve Army of labor as initially conceived by Marx and later succinctly formalized by Richard Goodwin (1967).

The interaction between accumulation and the Reserve Army can best take place under conditions in which the competition among capitals allows for a flexible distribution of income. A high rate of accumulation draws an increasing number of people into the production process, thereby draining the Reserve Army and causing an increase in the real wage. Since in Marx the real wage is inversely related to the rate of profits and the latter is positively related to the rate of accumulation and growth, an increase in the wage share signals the beginning of the phase where expansion slows down, leading, eventually, to a recession in which the Reserve Army is reconstituted and with it also the conditions for a new upswing. Economic recovery is made possible by the fall in real wages which is tantamount to a rise in the rate of profits. Now, if Harrod's method of juxtaposing the warranted to the natural growth rate were to lead only to a modified version of the classical trade cycle, nothing radically new would have been gained. Yet, Harrod stressed the fact that the conflict between the two growth rates could lead not just to cyclical unemployment but to chronic joblessness.

At this point it is legitimate to introduce the hypothesis that the growth mechanism portrayed by Harrod is not regulated by the Reserve Army of Labor and therefore it is not governed by flexible wage and profit shares. Instead, the following scenario becomes possible. When the economy embarks on a certain warranted rate, accumulation takes place under fixed distributive shares, with real wages expanding in step with productivity; growth continues until overproduction of machinery generates a breakdown in investment. The ensuing decline of effective demand can then create chronic unemployment – i.e., a form of unemployment which is no longer in a symbiotic

relation to capital accumulation. Hence Harrod spoke not of countercyclical policies – conceivable only if unemployment is seen as a cyclical phenomenon – but of a permanent program of public investment. Harrodian dynamics represents, therefore, not so much a shift from flex to fixprice as a shift from a variable to a relatively stable distribution of income.

There is no real indication in Harrod's writing of the reasons that bring the economy to behave in that way. Indeed, even the view that Harrodian dynamics implies stable distributive shares is derivable mostly from analytical work done well after the publication of Harrod's growth study and later book (Morishima, 1968). The relative stability of distributive shares can be linked to oligopolistic pricing induced by the concentration of capital; more specifically it can be tied to the relative rigidity of prices *vis-à-vis* money wages.

Traditionally, the macroeconomic effect of oligopolies has been studied in relation to stagnation; yet in history there have been important instances where highly trustified economies were also fast growing ones: Germany and Japan (Trebilcock, 1981). In a dynamic context the stagnationist tendency – the chronic unemployment mentioned by Harrod – can appear after the higher than the natural growth rate is no longer sustainable. As long as the warranted growth rate can be maintained the stability of the distributive shares guarantees steady accumulation.

To validate this point of view it is not necessary to assume a strictly stable share of wages or of profit. It is enough to assume that oligopolistic factors *à la* Kalecki are strong enough to limit the increase in real wages – due to the growth of employment – so that accumulation does not slow down to a rate which will avoid the accumulation of an excessive stock of capital. In other words, oligopolistic factors would prevent the profit squeeze which characterizes the beginning of the downturn in a Marxian competitive trade cycle. Instead, the Harrodian story is that the economy travels along a warranted rate higher than the natural unaware of the contradiction until the former becomes unsustainable.

In the Harrodian approach there is an implicit historical hypothesis which can be brought to the surface mostly by means of a Marxian analysis. In fact, the historical sketch inherent in Harrod's growth theory becomes understandable if read in conjunction with a periodization of the phases of capitalism suggested by Paul Sweezy (1953) in a study titled 'A Crucial Difference Between Capitalism and Socialism.' He argued that when industrialization is in a phase in which ample labor reserves exist, the expansion of the capital goods sector is limited only by capitalists' capacity to accumulate. Thus, the higher the share and the rate of profits the faster the speed of industrialization. The demand for machines is seen to come chiefly from the capital goods sector itself, not unlike the views put forward by Tugan Baranovski. As industrialization advances, the labor reservoir formed by the hitherto non-capitalistic branches of the economy tends to disappear,

so that the level of employable population stands in a direct relation to the size of the stock of capital. Under these circumstances, the department producing means of production undergoes a change in its functions. Since the present employable population can be more or less absorbed by the existing stock, the capital goods sector should supply machinery mostly to the consumption goods sector. At an advanced stage of industrialization, the role of the capital goods sector is to keep the stock of capital – expressed in terms of its employment capacity – in line with population. Such a situation would in fact imply a significant shift in the composition of output and in the structure of the stock of capital, towards the consumption goods sector at the expense of accumulation. For Sweezy the shift is unlikely to materialize because of the above mentioned oligopolistic factors shaping the distribution of income and the composition of production:

[T]here is no reason to suppose that the approach to the end of the period of industrialization would set in motion a mechanism accelerating the growth of consumption at the expense of accumulation and thus taking up the slack which the disappearance of expansion demand in Department I would otherwise cause. Other things being equal, in a capitalist system the fruits of industrialization, instead of being enjoyed in the form of rapidly increasing consumption are dissipated in unemployment and depression (Sweezy, 1953, in Horowitz, 1968, p. 320).

This passage expresses rather clearly the historical conditions in which the Harroddian dichotomy between the two growth rates becomes relevant; it also shows the affinity between Harroddian macro-dynamics and a major strand in contemporary Marxian thought. Perhaps the major point of unity between Harrod's views – as well as Keynes' arguments in Chapter 16 of *The General Theory* – and the Marxian strand represented by Sweezy, consists in that the analysis of the stability of capital accumulation has to be anchored – unlike Marx and other classical business cycle theorists such as Albert Aftalion – to the question of full employment (Halevi, 1985, 1987). The answer given by Sweezy was that attainment of full employment is unlikely, while an inherent tendency towards overcapacity is the plausible scenario. Interestingly enough, the method of the Traverse reinforces precisely Sweezy's point of view by elucidating the structural aspects of disequilibrium.

### 25.3 The Traverse

Harroddian macrodynamics leads to a disequilibrium situation determined by the fact that, if the existing capital stock can employ the whole labor force and if the capital goods sector can produce more capital goods than those needed to keep full employment, the economy is on the brink of a breakdown in investment whenever its level of activity approaches full

employment. For Harrod, as well as for Sweezy, the ensuing crisis is different from a cyclical downturn in so far as it entails the possibility of a chronic depression.

Harrod's method, while important for the further development of a Marxian theory of crisis, has been sidestepped in most post-Keynesian literature. The question of instability was disposed of by assuming either that techniques are infinitely adjustable or that changes in the saving ratio – brought about by variations in the distribution of income – would secure full employment growth (Solow, 1956; Kaldor, 1955–56). The notion of the Traverse put forward by Hicks in *Capital and Growth* in 1965 has the merit of showing that Harroddian disequilibrium cannot be easily reabsorbed. In this context, the method of the Traverse allows for the introduction of a critical perspective on traditional Keynesianism based on structural rather than subjective market oriented considerations. Let us begin with Hicks' remarks:

But let us suppose that the Harrod difficulty has been got over: that a suitable change in the propensity to save, for whatever reason, has occurred – will that be the end of the trouble? The magic that used to be attributed to a Keynesian fiscal policy assumed that it would; but there is a school of economists, whose voices were almost drowned in the fanfare of the Keynesian orchestra, who have been maintaining, all along, that it is not (Hicks, 1985, p. 131).<sup>1</sup>

The logic of the Traverse is very simple. Consider an economy which at time zero is in a position of full employment and of full capacity output. This situation need not coincide with an equilibrium stock of capital over time especially if the economy is assumed to be a developed one. In an industrially mature country – like Sweden for instance – the capacity to produce additional capital goods is divorced from demographic growth. Indeed, if a relationship exists it will be an inverse one: the richer the country, the greater its ability to produce capital equipment and the lower will be its demographic expansion. This aspect of the dynamic process affecting the economy was captured by Keynes who associated economies possessing a large stock of capital with a stagnant population (Keynes, 1936, Ch. 16). It is precisely this divergence that brought Keynes to argue that even if such an economy is initially at full capacity, entrepreneurs will be unlikely to continue to offer employment in a way which will utilize the whole of the stock of capital; i.e., the economy will display systemic unused capacity. The method of the Traverse uncovers the structural, not just behavioral, reasons for the persistence of unused capacity.

There are therefore good reasons to assume that in a developed economy the sectoral structure of the stock of capital at  $t(0)$  is capable of generating a rate of accumulation much higher than the expansion of the labor force. Although Hicks did not make that assumption, I think that the case

in which the productive capacity of the capital goods sector outstrips the growth in the labor force, is the case in which structural disequilibrium, hence the Traverse, becomes relevant. A further characteristic of modern industrial systems is the relative complementarity of 'factors,' a phenomenon which is well captured by assuming fixed production coefficients. It is interesting to see here that Hicks, in setting the stage for the Traverse process in *Capital and Growth*, introduced fixed coefficients as an assumption which expresses not fixed proportions – these may be changed through technical progress, involving, however, a modification in the whole structure of capital stock – but rather expresses the difference between modern industry and land-like activities. Much earlier in his life Hicks (1932) maintained that the *Principle of Variation* ought to be considered as the lynchpin of any theory of production; a radically different view from the approach taken in 1965. The assumptions about production coefficients along with a set of price equations in which the primary role of prices is to cover costs, give to the Traverse model features similar to Piero Sraffa's *Production of Commodities by Means of Commodities*. The historical and analytical importance of the similarity lies in that the founder of the method of Temporary Equilibrium (Hicks, 1939), in order to find a way of dealing with disequilibrium growth, had to resort to a scheme more closely related to the Classical school and therefore applicable also to Marx. Two additional assumptions are made before presenting a simple and slightly different version of the Traverse: no wages and all profits are saved, total output of machines is equated to the net increase in the stock of capital, bypassing the complication of calculating depreciation under varying growth rates.

The simple Traverse is based on a multipurpose capital good, entailing the following production model:

$$M = avK = GK, \quad G = av \quad (25.1)$$

$$L = K[(m-n)v+n] \quad (25.2)$$

$$C = b(1-v)K \quad a, b, m, n, \text{ are given} \quad (25.3)$$

$$L^* = (1+g)L \quad g = \text{constant} \quad (25.4)$$

where the asterisk \* denotes time  $t+1$ , while the elements without an asterisk are expressed at time  $t$ ;  $K$  is total capital stock;  $v$  is the share of  $K$  installed in the capital goods sector;  $M$  and  $C$  are the outputs of the capital and consumption goods sector respectively;  $L$  is the labor force;  $a$  and  $b$  are the output coefficients per machine in the capital and consumption goods sectors respectively;  $m$  and  $n$  are the operatives per machine in the capital and consumption goods sectors respectively;  $g$  the given growth rate of the labor force;  $G$  is the rate of increase of capital stock from  $t$  to  $t+1$ .

Equations (25.1) and (25.3) express the output of machines  $M$  and of consumption goods  $C$  in terms of the capital stock installed in the respective

sectors multiplied by the output coefficients of each particular sector. The expression  $G = av$  transforms this version of Hicks' model into a Fel'dman model because the growth rate is expressed through the sectoral distribution of the stock of capital. Equation (25.2) states that total employment is equal to the sum of the crews working with a unit of equipment in each sector multiplied by the sector's total amount of equipment. Equation (25.4) is self-explanatory.

The crucial quantity relation is that establishing an equilibrium between machinery and workers. On the basis of the preceding considerations  $G$  is taken to be greater than  $g$ . Thus, by period  $t + 1$  capital stock would have grown to  $(1 + G)K = K^*$  and the labor force to  $(1 + g)L = L^*$ . For full employment to be maintained without generating excess capacity it is necessary that  $L^* = \beta K^*$ , where  $\beta$  is the average labor capital ratio. By substituting equation (25.2) into (25.4) we obtain the equality which, if satisfied, should guarantee full employment:

$$L^* = [(m - n)v + n](1 + g)K = [(m - n)v^* + n](1 + G)K;$$

that is:

$$\begin{aligned} (hv^* + n)(1 + G) &= (hv + n)(1 + g) \\ \text{where } h &= (m - n) \end{aligned} \tag{25.5}$$

The unknown is  $v^*$ , since it represents the sectoral composition of the stock of capital at time  $t + 1$ . In other words, new equipment of a quantity  $M$  is produced during the temporal interval  $t(0), t + 1$  and at dawn of the new period  $t + 1$  we must find a distribution of capital goods between the two sectors such that full employment and full capacity are maintained. The exercise can be conducted by assuming that the new value  $v^*$ , if it exists, will be determined by shuffling around only the newly produced capital goods or that the whole of the capital stock is subjected to a reallocation procedure at the dawn of  $t + 1$ . For my purposes it makes no analytical difference which variant is chosen. The expression for  $v^*$  is:

$$v^* = [(1 + g)(hv + n) - (1 + G)n] / [(1 + G)h] \tag{25.6}$$

A solution for  $v^* \neq v$  does not exist for  $h = 0$ , which – I will argue – is not an unimportant case. We can have solutions with either  $m > n > m$ , entailing two different economic implications. For  $m > n$  the solution tends to be stable. Indeed, if the growth of the stock of capital outpaces the growth of population, with  $m > n$  the solution of (25.6) will give  $v^* < v$ , whereas with  $m < n$  the solution will be  $v^* > v$ . From equation (25.1) we know that the rate of growth of the stock of capital is positively related to the value of  $v$  – i.e., to the share of equipment installed in the capital goods sector. This means that whenever  $v^* < v$  for  $G > g$ , the rate of accumulation will slow down, converging toward the constant  $g$ . Full capacity and full employment are maintained throughout the transition period. All this is due to  $m > n$  which happens also

to satisfy the two-sector fixed coefficients version of the Neo-Classical growth model. Evidently, when  $m < n$  for  $G > g$ , then  $v^* > v$ . Momentary equilibrium is assured at time  $t + 1$ , yet with a higher value of  $v$  the economy is poised to grow at a still faster rate than that of the labor force. The widening gap between  $G$  and  $g$  will eventually make the accumulation process burst.

Structural interconnections also determine the price system of the economy. Hicks worked with Sraffa-type prices which are calculated on the basis of wage costs times the quantity of labor per unit of output added to the rate of profits times the quantity and the price of machinery per unit of output. It is preferable to deduce prices from Marxian reproduction schemes, for they express the sectoral linkages much better. The price of the consumption good is obtained by setting the wage bill equal to the value of the consumption goods sector, a procedure used also by Joan Robinson (1956). We get:

$$p_c = wL/C$$

where  $p_c$  is the unit price of consumption goods,  $w$  is the money wage rate.

Substituting from equations (25.2) and (25.3), the expression for  $p_c$  becomes:

$$p_c = w(hv + n)/b(1 - v); \text{ for } h = 0, p_c = wn/b(1 - v) \quad (25.7)$$

Once the money wage is set, the price of consumption goods is completely determined by the initial distribution of the stock of capital between the two sectors, given by  $v$  and  $(1 - v)$ . Consumption goods are allocated to the whole labor force so that, unless sectoral wage differentials are introduced, the question of the sectoral distribution of wage goods does not arise. The quantity  $M$  of capital goods can, however, be allocated in many different proportions relatively to the initial distributions  $v$  and  $(1 - v)$ . As a consequence, the unit price of  $M$  will be determined not by the initial distributions, but by the new ones. This phenomenon cannot be captured by Sraffa's prices because they are derived from his assumption of an invariant composition of output, whereas in the Traverse it is notably the composition of output which is subjected to changes. This is the reason why Marx's schemes are more useful.

From Marx we know that the value of the wage bill in the capital goods sector must be equal to the value of machines sold to the consumption goods sector. This is the necessary corollary of the fact that if no profits are consumed, the wage bill in the capital goods sector constitutes the profits of the consumption goods sector. Hence:

$$P_i (1 - k)M = wL_i$$

where  $(1 - k)$  is the proportion of  $M$  going as new equipment to the consumption goods sector.  $L_i$  is the labor force in the capital goods sector:  $L_i = mvK$ .

Substituting equation (25.1) for  $M$  and  $mvK$  for  $L_i$  the expression for the unit price of the machines produced is:

$$p_i = wm/a(1 - k). \quad (25.8)$$

If  $k = v$ , the system is in a steady state. However, the solution for the quantity equation (25.6), if it exists, requires a value of  $v^*$  greater or smaller than  $v$  according to whether  $h$  is positive or negative. Therefore  $k \neq v$ . At this point we see that while the change in the planning of the allocation of newly produced machinery affects the prices of capital goods, it does not influence immediately the prices of consumption goods. These will change only when the new allocations come into being, thereby modifying the structural basis on which equation (25.7) rests.

The result of the quantity equation (25.6) tells us that the system may well end up in an equilibrium which magnifies the Harrodian dichotomy between the two growth rates. In this context it is not surprising that standard economists chose only those special case conditions – namely  $m > n$  – in which the model works as prescribed by the Neo-Classical growth parable (Foley and Sidrauski, 1970). Unlike Hicks, who correctly observed that ‘the chief lesson from these exercises is that smooth adjustment may not be possible’ (Hicks, 1985, p. 137), Neo-Classical texts, such as Foley and Sidrauski (1970), constructed policy models entirely on the most conformist assumptions contributing, in the process, to the shallow technocratic Keynesianism of the 1960–75 period, which was to collapse with the first major post-war recession. Intellectually unequipped to research and discuss the structural determinants of the crisis, technocratic Keynesianism helped the demise of Keynes’ most original economic ideas, precisely in a period in which structural analysis was emerging as the still incomplete element in Keynesian and post-Keynesian thought.

The price equations confirm and strengthen Hicks’ point according to which prices cannot ‘give much guidance about the planning of production, about the choice of the path to equilibrium’ (Hicks, 1985, p. 142). The passive nature of prices, their dependency *vis-à-vis* future and current structural relations, is shown by the difference between equations (25.7) and (25.8). The current distribution of the stock of capital between the two sectors determines consumption goods prices, while the ‘planned’ distribution of the newly produced equipment determines the price of capital goods. Prices are therefore led by quantity relations; their task is to be consistent with those quantities in order to ensure the intersectoral flows, but their role stops at that. They certainly do not tell anything about the type of flows which would be needed for the attainment of a stable equilibrium path. Let us take the instance where equilibrium, even if repeated over a number of periods, is bound to burst. This is the case when  $m < n$ . Here, every time a momentary equilibrium is found, the difference between  $G$  and  $g$  will grow larger in the subsequent period. Yet, prices will have always performed what was required from them. The source



of disequilibrium – in the two-sector model used in this paper – is centered on the technological configurations of the economy which make the consumption goods more labor intensive than the capital goods sector.

#### 25.4 A More Complex Traverse: Multiple Capital Goods and Unused Capacity

The Hicksian Traverse achieves its objective of showing that smooth adjustment may not be possible by confronting a stable with an unstable solution. Both are, however, very special cases. Why should a tendency toward disequilibrium depend so much on a specific set of labor–machine ratios? Furthermore, the insights provided by Hicks are constrained by the implicit investment rule which governs *both* solutions. The mechanism leading to an unstable result, when  $m < n$ , is that capital goods should be sectorally allocated according to the relative scarcity of factors of production. Hence, with  $G > g$  labor becomes scarcer in relation to machinery thereby requiring an investment decision favoring the least labor-intensive sector. As a consequence, with  $m < n$ , capitalists and pro-market planners alike allocate the newly produced machines  $M$  primarily toward the capital goods sector. They are so bemused by the theory of relative scarcities as not to realize that they are raising the rate of accumulation while they should be lowering it! By contrast, if someone has declared the capital goods sector to be more labor-intensive, then the  $M$  machines will be primarily directed toward the consumption goods sector, effectively lowering the rate of accumulation.

An unstable result based on such a blind investment rule is as implausible as the stable equilibrium solution. In this context, an outright disequilibrium outcome, which does not presuppose any perverse investment behavior, is given by the case of uniform labor–machine ratios – i.e. of  $m = n$ . In Marxian terms this corresponds to the much decried uniform organic composition of capital. Until now  $m \neq n$  was the factor allowing capital goods to be fetched in changing proportions by the two sectors. The importance of  $m \neq n$  is strictly linked to the above-mentioned extreme allocation procedure. Yet the case of the unstable solution shows that that procedure cannot be retained. It follows that not too much emphasis should be given to  $m \neq n$ .

Within the framework of a two-sector model, it is more than legitimate to operate under the Marxian hypothesis of a uniform organic composition, without any irrational investment rule being attached to it. With  $m = n$ , there is no meaningful solution for equation (25.6). This means that for  $G > g$  Harroddian disequilibrium inevitably leads to over accumulation and to unused capacity. Capitalists as well as planners do not have alternatives to it. More specifically, they do not have a ready-made investment criterion which will avoid, even temporarily, the emergence of an economy-wide excess capacity. The possible difference in the behavior of the respective institutional forms of organization will lie in the way in which their economic agencies respond to it.

A simple example comparing a truly one-commodity economy and a Marxian two-sector model with uniform machine–labor ratios will clarify the above point. Consider a corn economy in which the surplus of corn above consumption turns out to be too large in relation to the amount which can be replowed with the existing labor force. A sufficiently flexible distribution of income is all that is required to raise consumption and absorb the extra corn. In particular, as long as the ‘corn’ model is treated as representing a capitalist economy – i.e., an economy not characterized by types of entitlements sustaining the hoarding of grains and staples (Sen, 1981) – there is no structural need to hold onto the extra corn. Hicks was then correct in stressing that the inability of early Classical growth models to include undesired inventory accumulation is what makes them primitive in relation to issues connected with transitional states.

Let us now examine, by means of a simple numerical exercise, a capital goods–consumption goods model in which the respective labor–machine ratios do not perform the role of supporting the allocation rule described hitherto. Consider an economy made up of 100 immortal machines, of which 90 are in the consumption goods sector and 10 in the capital goods sector. One machine in the capital goods sector produces one machine. Hence, at dawn of the next period the economy’s capital stock will have expanded by 10%. Each machine employs one worker irrespective of the sector in which it is installed. Thus, for the capital stock to be fully utilized in the next period, the work force should also grow by 10 units. If, however, the quantity of labor has increased by, say, 8%, two units of capital goods will remain unused with Harroddian type repercussions on the aggregate demand for investment.

Uniformity of labor–machine ratios eliminates the dependency on the peculiar form of sectoral allocation of capital goods, but at the same time it highlights the limitations of the two-sector framework. Whenever a certain result is obtained it strictly depends on the construction of yet another special case. This shortcoming is linked to the nature of the two-sector model which does not allow for the simultaneous existence of multiple technological and structural configurations.

At the root of this difficulty lies the homogeneity of the capital goods sector which prevents also the introduction of temporal discontinuities.

The problem was in fact seen by Hicks:

We had to suppose when analysing a Traverse, that capital (tractors) could be transferred, in various quantities, from one ‘industry’ to another between one period and the next. If the end of the one and the beginning of the other are simultaneous, the transfer must take place instantaneously. But this is quite hard to accept (Hicks, 1985, pp. 144–5).

Now, if the concept of *structural disequilibrium* (this is Hicks’ title of the Traverse chapter in the 1985 book) is considered to be essential both for

dynamic analysis as well as for a better understanding of the Marxian views about breakdowns in accumulation, the way out must be found within the framework in which the concept itself has been developed. The framework is constituted by circular flows of the intersectoral nature which also mark Marx's reproduction schemes. Indeed it is the similarity in the portrayal of the process of production which renders Hicks' structural disequilibrium germane to Marxian analysis. Furthermore, on Hicks' own terms, the difficulty highlighted in the above passage raises questions about the particular form of the model used to present the notion of structural disequilibrium, but it does not necessarily invalidate the notion itself.

As a consequence, I do not think that Hicks' choice to overcome the problem by resorting to a Neo-Austrian approach is an improvement on the analysis of the earlier Traverse (Hicks, 1973; 1985, Ch. 14). The Traverse, when seen in a structural context, does represent – as far as growth theory is concerned – a further broadening of horizons beyond, but not independently from, the capital theoretic debates of the 1960s. The disequilibrium argument in the Traverse chapter in *Capital and Growth* is complementary to some of the observations made during the controversy over capital theory. In the latter the validity of the Neo-Classical parable was shown to depend on the capital goods sector being more labor-intensive than the consumption goods sector ( $m > n$ ); the same unique and exceptional condition holds for a smooth Traverse. In this respect the Neo-Austrian Traverse developed in *Capital and Time* brings the frontier of knowledge inward for two reasons. Firstly, because it is built on the assumption of the Simple Profile, which conceals all the capital theoretic complications. Secondly, and perhaps more importantly, it eliminates circularity in production and with it the very notion of structural disequilibrium.

At this point the way to maintain and strengthen the notion of structural disequilibrium is to see how the whole approach would work by introducing one more capital goods sector. Lowe's system allows us to do that. Here I shall borrow only the idea of an additional capital good without altering the assumptions made in the course of this study.

In order not to alter circularity the additional sector is deemed to produce 'machine tools' with which the capital goods for the consumption goods sector are made. Machine tools also reproduce themselves. My Hicksian version of the model looks as follows:

$$M_m = a_m x K_k = G_k K_k \quad (25.9)$$

$$G_k = a_m x \quad (25.9a)$$

$$M_i = a_i (1 - x) K_k = G_c K_c \quad (25.10)$$

$$K_k = K_m + K_i = [x + (1 - x)] K_k \quad (25.11)$$

$$L = [(m_m - m_i)x + m_i + nq] K_k \quad (25.12)$$

$$q = [a_i(1-x)/a_m x] = K_c/K_k \quad (25.13)$$

$$L^* = (1+g)L \quad (25.14)$$

where  $M_m$  and  $M_i$  are the machines produced by the machine tools and the intermediate investment goods sectors respectively, with  $K_m$ ,  $K_i$ ,  $a_m$ ,  $a_i$ ,  $m_m$ ,  $m_i$ , denoting the corresponding stocks of capital, output-capital coefficients and labor-machine ratios.  $K_c$  stands for the capital stock in the consumption goods sector,  $n$  is its labor-machine ratio. Asterisks denote the value of the symbol at time  $t+1$ .

This model, which can be ascribed to Adolph Lowe, takes into account Hicks' observation about the difficulty in accepting that 'tractors' can be timelessly shifted from industry to industry, without abandoning the idea and method of structural interconnectedness. Hicks' single 'tractor' is here replaced by a 'machine tool' ( $M_m$ ) which can be allocated timelessly only between  $K_m$  and  $K_i$  and by a 'tractor' ( $M_i$ ), produced by the  $K_i$  sector, which can be installed only in the consumption goods sector, as shown by equation (25.10). If between time  $t(0)$  and  $t+1$  all the sectors grow at a uniform rate ( $G_k = G_c$ )  $> g$ , at dawn of  $t+1$  only the proportion  $x/(1-x)$  can be modified, but not the value of  $q$  — i.e., the proportion between the capital stock in the consumption goods sector and the stock of the combined capital goods sectors. Assume that measures are taken to lower the rate of accumulation in order to bring overall expansion down to the value of  $g$ . Then,  $x^*$  will be smaller than  $x$ . From equations (25.10) and (25.13) we have the growth rate of the capital stock in the consumption goods sector:

$$G_c = a_i(1-x)/q \quad (25.15)$$

The accumulation of capital in the consumption goods sector is inversely related to  $x$  (that is, to  $K_m/K_k$ ) as well as to  $q$  (that is, to  $K_c/K_k$ ). The movements of  $x$  and  $q$  are not, however, simultaneous, since the value of  $q$  can change only one period of production after the change in  $x$ . Hence, at dawn of period  $t+1$ ,  $x^*$  will be lower than  $x$ , leaving  $q$  unaltered. It follows that from period  $t+1$  to period  $t+2$ ,  $G_c^* > G_c$  and  $G_k^* < G_k$ . On the basis of the assumption of uniform length of gestation periods, the growth rate of the capital stock in the consumption goods sector moves at first in an opposite direction from that in the two capital goods sectors. Unlike the two-sector model, the change in the allocation of equipment within the capital goods sectors does not necessarily cause immediately a lower rate of growth in total capital stock. The lower value of  $G_k$  and the higher value of  $G_c$  will raise the value of  $q$  by the dawn of period  $t+2$ . In this way, the rate of accumulation in the consumption goods sector will gradually converge to the rate set by  $a_m x^*$ .

The initially asymmetrical movements in the growth rates of the capital stock, whenever the proportion of equipment reinvested in the 'machine tool' sector is changed, have implications for the process of absorption of

the labor force. A full employment transition is even more unlikely than in the two-sector case. The conditions for the allocation of labor reflect two phenomena: the first is that a change in  $x$  for  $m_m \neq m_i$  influences initially only the employment capacity of the capital goods sector; the second is that a lower  $x$  actually expands the growth rate of one kind of capital stock. From a Neo-Classical perspective, the best solution would be a fully automated consumption goods industry. In this way labor absorption will be entirely determined within the two capital goods sectors, and with  $m_m > m_i$  smooth convergence would be possible (see equation (25.12) for  $n = 0$ ). A non-fully automated consumption goods sector creates complications even if the simple matrix of the capital goods sectors displays well-behaved properties.

The number of people fetched by the capital goods sectors depends on the sectors' aggregate size and on the possibility of varying the employment capacity of equipment by shifting it around. This is, however, impossible to perform with the capital stock of the consumption goods sector. As a consequence there is a non-adjustable component of employment formed by the workers absorbed by the consumption goods sector. Once this sector has taken its share of the workforce, the rest can be allocated to the capital goods sectors with the same procedure followed for the two-sector case in equation (25.5). The larger the share of labor taken up by the consumption goods sector, the more difficult it is to find an equilibrium solution for the other two branches, even if they obey the labor intensity condition  $m_m > m_i$ . In particular, an equilibrium solution valid at dawn of  $t + 1$ , may be upset by  $t + 2$  because of the bulge in the employment capacity of the consumption goods sector resulting from the initial divergence in growth rates. The amount of labor left to the capital goods sector may be such that the corresponding full employment value of  $K_m/K_k$  can turn out negative, meaning no feasible solution.

It follows, that in a Lowe-type model, neo-Classical convergence to full employment can be somehow introduced only if the consumption goods sector is very much more mechanized than the other two. The expansion of the Hicksian Traverse in a framework in which, while retaining circularity, there is heterogeneous capital, has further restricted the range of validity of specific technological configurations. The greater the number of sectors, the less reliable become the mechanical conditions on the basis of which neo-Classicalists have sought to justify convergence to full employment. Thus, since disequilibrium is likely to materialize under any technological assumption, it is legitimate to think in terms of uniform organic composition of capital as it yields quite general and uncomplicated insights. Too much has been said in the past against Marx's procedure without realizing that it is quite useful to grasp in a combined way the essential features of the physical and value dimension of accumulation.

## 25.5 Conclusions

With disequilibrium as the norm, unused capacity is inevitable regardless of the technological configurations of the economy. At this point the analysis can proceed by inquiring into the possible states of unemployment induced by that very excess capacity. This would be the approach taken by Malinvaud in his *Profitability and Unemployment* (1980), where the study begins precisely with inequality (i) in section 2 above:  $\gamma > zL$  ( $\gamma$  is productive capacity,  $z$  is average labor productivity,  $L$  is employable labor). Alternatively, one could analyze the possible ways of keeping full employment in the presence of undesired equipment. Indeed, excess capacity can arise in different institutional contexts. A socialist system of ownership relations, for instance, does not by itself guarantee the regular and stable utilization of the stock of capital. What we should expect from this kind of system is that the working population be emancipated from unemployment. In other words, responses to structural conditions should differ according to the social relations of production which govern a given economy.

Within the framework of the Lowe-type model used in section 4 above, imposing the social condition that full employment is to be kept throughout the entire time span of the Traverse means that the whole burden of adjustment falls on the degree of capacity utilization. On the one hand the institutions of the economy will have to make sure that the emergence of spare capacity will not lead to a reaction by the individual units which will create unemployment. On the other, institutions will have to plan how to distribute the amount of unused capacity. If, for example, it is decided to maintain the maximum degree of utilization in the consumption goods sector, the entire burden of spare capacity will fall on the two capital goods sectors. In this context, if the intermediate investment sector continues to operate at capacity, it will be the sector producing machine tools that suffers most. This sector is the branch which sustains the whole capital formation of the system, hence the shrinkage of its productive capacity cannot be allowed to reach a point in which a dearth of capital *vis-à-vis* the long-term requirements of the economy sets in.

The method of the Traverse leads, if full employment is to be taken as a permanent condition, to policy implications which involve a planned economic system. This is because, unlike the traditional or 'bastard' Keynesian approach, policies will have to be based on sectoral planning and not so much on the management of aggregate demand.

In conclusion, Harrod's analysis polishes and strengthens the Marxian discussion about possible breakdowns in accumulation, by introducing the brilliant and powerful distinction between the warranted and the natural growth rates. In this way the problem of effective demand and the question of sectoral proportions are tied together.

The Hicks and Lowe structural Traverses show that Harroddian disequilibrium cannot be gotten over by means of some kind of flexibilities – whether in production coefficients or in the saving ratio. Finally, the method of the Traverse validates Keynes' view that in a capital rich economic system full employment and full utilization of equipment are not always compatible. In so doing the method opens new horizons on the need for, and complexities of, planning.

## Note

1. Hicks considers the Austrian approach to be an antidote to the Keynesian orchestra. Yet, if the concept of effective demand is to be retained, then the Marxian approach is more significant than the Austrian one. As will be argued in this study, Hicks' structural disequilibrium can be better grasped from a Marxian perspective. Let us remind the reader that in Vol. II of *Capital Marx* was able to address some of the issues that later were to become the main concern of effective demand theorists.

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# Index

- acceleration-induced investment, 310  
Ackley, G., 80n8  
    effects of increase in quantity of  
    money, 61–2  
    *Macroeconomic Theory*, 60, 74  
Addison, J. T., 68n3  
Aftalion, A., 135, 338  
aggregate demand, 20–1, 54–5, 58–9,  
    63–6, 77, 85, 91–2, 164, 167,  
    174n17, 174n18, 200, 205,  
    210–11, 255–6, 292–3, 345,  
    349  
    curve, based on IS-LM, 64–6  
    Kalecki's trade cycle, 292–3  
    rate of interest and, 58–9  
    *see also* Keynes, J.M.  
aggregate supply, 21, 45, 47, 48, 54–5,  
    58–9, 63, 67, 78, 255  
    curve, in IS-LM, 64–6  
    Keynes' curve for, 44–8  
Allen, R. G. D., 113  
Amadeo, E. J., 183  
Arestis, P., 6, 210, 213, 214n8  
Asimakopulos, A., 126, 157n12, 158n14,  
    174n13  
  
Bade, R., 65, 66  
Balanced Budget Theorem, 4  
Baran, P. A., 140, 158n13, 179, 181,  
    237n6, 265, 267, 279, 280  
    on innovations, 272  
    investment vs competitive capitalism,  
    275–6  
    on investments, 272  
    Marxist theme of capitalistic  
    accumulation, 269–73  
    *Monopoly Capital*, 276  
    notion of monopolistic capitalism, 5,  
    267–8, 271, 278  
    *Political Economy of Growth*, 275  
    on unemployment, 276–7  
Barens, I., 69, 79n3  
Barton, J., 68n3  
  
Basile, L., 141, 149, 156, 157n11, 158n12,  
    158n14  
Bellofiore, R., 6, 259  
Bernstein, P., 214n6  
Besomi, D., 288, 321, 324, 327, 328n2  
Bhaduri, A., 229  
Brainard, W. C., 266  
Britten-Jones, M., 214n6  
budgetary deficit, 202–3, 205–6  
Burbidge, J. B., 126  
  
Calder, K., 42  
Cambridge equation of distribution, 35  
capacity-based competition, 136  
capital formation, 5, 204, 231, 349  
capitalist accumulation, 2, 36–7, 42, 126,  
    194, 230–1, 235, 240, 255, 257,  
    261, 267–8, 278, 286, 331–4,  
    337–8  
    in consumption goods sector, 347–8  
    Harrodian disproportionalities and,  
    334–8  
    sectoral and monetary dimensions of,  
    332–3  
capitalist development, 1–2, 138, 256–7,  
    280  
capitalist economy, 38, 102n41, 107,  
    113–14, 117, 121, 133, 138,  
    181–2, 186n2, 196, 210, 216,  
    230, 233, 257, 265, 268, 278,  
    281n4, 289–90, 296, 327, 332–3,  
    336, 345  
    defined, 3  
    employment, 70  
    Kalecki's contributions, *see* Kalecki, M.  
cartels, 1, 136, 145, 269  
    competition between different,  
    270  
    formation of, 270  
Caserta, M., 79n1  
Chamberlin, E. H., 145  
Chang, W., 61  
Chapple, S., 100n4

- Chick, V., 7, 44–5, 47–8, 48*n*3, 69–70, 76, 78, 79*n*1, 80*n*9  
 link between marginal value product and employment, 47–8, 48*n*3  
 measurement of labor, 48*n*3  
 position on IS-LM model, 44–5, 75–8
- Clarke, P., 101*n*13
- Classical causality, 39–40
- classical economics, 70, 82–3, 99, 123  
 analytical difference between Kalecki and, 177–86  
 export and import of goods and services, 28, 112, 139  
 Kalecki's analysis, 227–8, 237*n*2  
 Luxemburg's analysis, 256, 258–9  
 growth and accumulation of nations, 82–3  
 size of surplus and level of profits, 39–40, 271, 274
- Sraffa's contributions, 128, 145, 217, 219, 221, 224, 340, 342
- stagnation tendencies of capitalist economies, 109, 267–8, 271–2, 273–4  
 Bretton Woods system and, 231–2  
 Kalecki's analysis, 125, 134, 138–9, 207*n*8, 232, 236, 240, 247  
 labour-saving technology and, 236  
 Marx's analysis, 257  
 of monopolistic capitalism, 268, 278  
 of the 1930s, 267  
 relation between oligopoly and, 271–3, 282*n*8, 337  
 role of investment and innovation, 240  
 Steindl's analysis, 280
- Clower, R., 34
- Cobb–Douglas production function, 49*n*4
- Colletti, L., 1, 281*n*3
- commodity capital, 267
- competition, 30  
 capacity-based, 136  
 between different cartels, 270  
 imperfect, 126, 145, 147, 151, 181, 211, 244, 287, 297  
 imperfect competition/real wages, 98  
 Marxist perspective, 36, 273–9  
 perfect, 45, 83, 95, 142, 179, 210, 219, 274, 287, 295  
 pure, 45, 47–8
- confidence, 51, 90  
 entrepreneurial, 168, 197–201  
 investor, 73  
 rate of interest and, 52–3, 62, 74  
 state of business, 118–19, 234
- consumption function, 57, 72, 86, 90, 316
- consumption goods, effective demand for, 37–40  
 individual savings and, 40  
 investment and cyclical pattern of accumulation, 38  
 Kalecki's treatment of wages and, 39  
 into Marx's framework, 37  
 rate of capacity utilization and, 38  
 rate of profit in, 37–8
- Corriere della Sera*, 2
- Cowling, K., 158*n*13, 158*n*15
- Crotty, J., 171, 174*n*8, 249
- cyclical accumulation, 277
- cyclical fluctuations and trends, response to, 11, 35–6, 93, 96, 118, 120, 171, 198, 202, 294, 296  
 behaviour of investment, 291  
 rate of profit, 37–41
- cyclical growth theory, 24, 39, 243, 248, 261, 336
- Dalziel, P., 31*n*2
- Darity, W., 259, 262*n*4
- Dasgupta, A. K., 31*n*1
- Das Kapital*, 1, 35–6
- Davidson, P., 49, 101*n*26, 156*n*3, 209–10, 212–13, 237*n*3
- degree of capacity utilization, 40, 76, 135–7, 182–4, 187*n*8, 231, 272, 286, 349
- degree of monopoly, 4, 9, 117, 122–3, 142–4, 146, 152, 155, 153*n*2, 170–3, 178–9, 181, 184, 201, 277, 285
- Del Monte, A., 183, 277
- demand curve, 45, 48, 62, 144–5, 147–8  
 aggregate, 64–6  
 for capital assets, 192–3, 195, 246–7  
 firm's elasticity and, 145, 156*n*3  
 for imperfect competition, 145, 147–8  
 for individual commodity, 62  
 long-period, 246–7  
 for pure competition, 45

- demand curve – *continued*  
 in relation to price of consumption goods, 48, 145  
*see also* effective demand; Keynes, J.M.
- demand-determined oligopolistic economy, 3
- depreciation, 28, 35, 138, 181, 189, 196, 221, 293, 340
- Desai, M., 262*n*2
- disequilibrium  
 capital goods–consumption goods model, 344–7  
 Keynes's understanding of, 70, 285  
 Harrodian theory of, 333–4, 338–44  
 labor–machine ratios and, 344–7  
 logic of the Traverse, 338–44  
 Malinvaud's conception of, 335  
 structural, 340, 345–6, 350*n*1  
*see also* equilibrium
- disposable income, 20
- division of economics, 20, 83, 85, 92, 96, 163, 165, 216, 221, 331–2
- division of labor, 269
- Dixon, R. J., 222*n*7
- Dobb, M., 122, 125, 127, 129*n*13, 156*n*3, 186*n*3, 261
- Dornbusch, R., 66
- Dow, S., 102*n*35, 102*n*48, 214*n*7
- Dymski, G., 213
- Eatwell, J., 177
- economic cycle theory of Kalecki  
 assumptions and closing remarks, 204–6  
 limit to investments, 192–7  
 obstacles to and means of achieving full employment, 197–204  
 replacement of budgetary deficit policy, 202–3, 205–6
- Edey, M., 214*n*6
- effective demand, 8–9, 34, 46, 59, 81–2, 86–7, 107–9, 119–21, 124, 137, 170, 172, 245, 250, 276, 333  
 aggregate, 21  
 in capitalism, 255, 257–60, 267–9, 271  
 in context of “free competition,” 208–11  
 effect of failure of, 89, 125  
 fiscal policy and, 226, 228, 230–1, 233, 235–6  
 investment spending as a source of, 114  
 in IS-LM analysis, 70, 75, 77  
 level of employment and, 55–6, 63, 70, 89–91  
 Marxian perspective, 3  
 Marx's theory of cyclical growth, 37–41  
 comparison between Marx and Kalecki, 39–40  
 role of, 180  
 by subsidization of mass consumer goods and/or the maintenance of prices, 200–6  
 trade cycle and, 241
- Eisner, R., 214*n*6
- elasticity  
 of average revenue function, 123  
 of demand, 144–9, 157*n*7, 271, 290, 292  
 Kalecki's definition, 150, 156*n*3  
 of substitution, 243
- employment  
 Kalecki's analysis, 92–3  
 Keynes' theory of, 51–5  
 in neoclassical economics, 83–4  
*see also* full employment; unemployment
- employment multiplier, 4, 48, 110
- Engels, F., 1
- entrepreneurial capital, 193, 196–7, 207*n*8
- entrepreneurial confidence, 168, 197–201
- entrepreneurs, 47, 72, 87, 212, 290–1, 339  
 expectations, 306–7, 310–11, 316–17, 324–5, 333  
 investment decisions, 195  
 oligopoly and pricing decisions of, 179  
 opposition to State investment, 199  
 profit-maximizing, 148–52
- equilibrium, 51, 70–1, 256  
 distinction between partial and general, 218–19  
 Harrod's factors of stable equilibrium position, 290  
 Joan Robinson's, 248–9  
 long-period, 79, 183, 243, 248  
 ‘neoclassical’ general, 84  
 rate of growth, 10, 305–8, 310, 312–13, 316, 322, 324–5, 327  
 unemployment, 247  
 Walrasian, 10, 70  
*see also* disequilibrium

- Erdos, P., 101*n*22  
 European Common Market, 2  
 Evans, M. K., 113
- Feiwel, G. R., 109, 111, 123  
 Feldstein, M., 31*n*2  
 financial markets in monetary economy, 40–1  
 financial speculation, 140, 281*n*2  
 Fine, B., 157*n*10  
 fiscal policy, Kalecki's framework
  - full employment
    - attainment of, 229–30
    - obstacles to maintaining, 232–3
    - political obstacles to, 233–6
    - possibility of moving towards, 230–2
  - investment and profits, 226–9
  - national income, 227–8
  - wage goods sector, 229–30
- Fischer, S., 66, 68*n*8  
 fixed investment, 54  
 foreign exchange
  - post-Bretton Woods era, 29
  - precautionary demand for, 28–9
  - purchasing power parity and, 30
  - rate of interest and, 29
  - speculative demand for, 28–9
  - supply of and demand for, 28
  - transactions demand for, 28–9
- Friedman, M., 67, 99, 101*n*14, 237*n*8  
 Frisch, R., 107, 288, 294, 322, 324, 328  
 full employment, 15, 81, 266, 348
  - attainment of, 229–30
  - in capitalist economies, 211
  - causes of, 20
  - incompatibility of capitalism and, 236
  - Keynes's analysis, 21
    - money wages, influence of, 21
  - obstacles to and means of achieving,
    - Kalecki's observations, 197–204
    - basic assumptions, 201
    - income distribution and, 202–3
    - manipulation of interest rates, effect of, 198–9
    - State investment, effect of, 197–9, 201–2, 205
    - unions, role of, 203
    - wages and prices, role of, 203, 205–6
  - obstacles to maintaining, 232–3
  - in orthodox theory, 21
  - political obstacles to, 233–6, 250–1
  - possibility of moving towards, 230–2
  - role of the State, 119–21
- fundamental uncertainty, 19, 70
- Galbraith, J. K., 270  
 Gandolfo, G., 113, 129*n*9  
 Garegnani, P., 3, 31*n*3, 183  
 General Law of capital accumulation, 36–7  
*The General Theory*, 15, 19–24, 44–5, 50–1, 59, 82, 239–40, 266–7, 287
  - analysis of open economy, 26–7
  - effects of changes in moneywages, 87–9
  - of employment, interest and money, 84–90
  - endogenous nature of money supply, 212–13
  - endogenous rate of interest, 54
  - fallacy of composition, 85
  - full employment, 15
    - causes of, 20
  - general price level, view on, 64
  - historical analysis, 51–2
  - inflationary gap, concept of, 22
  - limitations and criticisms of, 90–1
    - analysis of investment, 90–1
    - causes of unemployment, 90
  - link between monetary and real variables, 19–20
  - long-term expectations of
    - investments, 20, 41, 78, 247
  - micro and macro analysis, 20
  - micro–macro dichotomy, 85–6
  - problems with equilibrium models, 60
  - rate of interest, 19
  - theory of aggregate investment
    - flows, 23
    - see also* Keynes, J.M.
- Gold Standard, 27, 112  
 Gomulka, S., 129*n*9  
 Goodwin, R., 248, 261, 277, 283*n*12, 294, 299*n*12, 336  
 Gordon, R. J., 64  
 Groenewegen, P., 8
- Haavelmo, T., 4
  - theorem, 191, 205
- Haberler, G., 298*n*8, 322  
 Hahn, F. H., 101*n*16, 156*n*3, 164, 174*n*6, 185, 222*n*1

- Halevi, J., 32, 38, 124, 129n10, 181, 183, 221, 222n2, 235, 237n4, 237n6, 257
- Hall, R., 2, 147, 148
- Hamouda, O. F., 129n19, 298n4
- Harcourt, G. C., 7, 22, 31n2, 101n16, 101n17, 129n6, 129n19, 174n1, 174n6, 174n8, 214n6, 240, 241, 242, 243, 247, 248, 251n1, 255, 261, 262n3, 262n5
- Harris, D. J., 260
- Harrod, R.F., 6–8, 10–11, 57, 72, 73, 145, 255, 256, 258, 259, 262
- determination of prices, 57–8
- equilibrium rate of growth, 305–9
- assumption relating planned investment to *ex post* investment, 306–7
  - autonomous investment, 313–16
  - basic equation, 310–11
  - Dr. Inada's analysis, 319–20
  - expectations of future income levels, 316–17
  - flexible accelerator case, 307–8, 319–20
  - key assumptions, 312–17
  - rigid accelerator case, 305–6
  - savings, 312–13
  - unstable, 311–12
- growth theorems, 11
- interpretation of the *General Theory*, 56
- on liquidity preference, 57
- model of IS-LM, 56–7, 71–3
- trade cycle theory, 287–92, 295–8
- warranted rate of growth, 309–17
- Rose's criticism of, 310–12
- work on economic dynamics, 321–7
- about expectations and entrepreneurial decision-making, 325–6
  - lags, psychological, monetary factors, 323–5
  - parameter values, 326–7
- Harvey, J., 28, 29, 30
- Heilbroner, R., 214n6
- Hicks, J., 50, 56–8, 69, 72–5, 79, 185, 187n9, 322, 344–7
- apparatus, 55
- determination of prices, 57–8
- exposition of IS-LM, 56–7, 70–3
- criticisms of, 74–5, 78
- liquidity preference, importance of, 63, 74–5, 78
- notion of structural disequilibrium, 345–6, 350n1
- traverse analysis, 74, 183, 185, 333–4, 338–48
- Hilferding, R., 1, 134, 269–70, 281n4
- Das Finanzkapital*, 269
  - views on cartels, 1, 269–70
- Hitch, C. J., 147, 148
- Hoover, K. D., 102n45
- Horioka, C., 31n2
- Howitt, P., 101n23, 102n44, 102n45, 161
- Illiquidity preference, 77, 79
- see also* liquidity preference
- imperfect competition, 8–9, 22, 44, 58, 73, 91, 95–8, 170, 181, 241
- comparison of Harrod and Kalecki, 297
  - Harrod's analysis, 290, 297
  - Kalecki's analysis, 108–9, 117, 145, 210–12, 219, 243–4, 295
  - money wages and, 39
  - pure, 147–8, 150
  - trade cycle theory, 295
- imperialism, 1, 135, 259, 261
- inflation and deflation, 18, 66, 84, 111, 191, 201, 220, 231, 267, 273, 280, 313
- associated with higher marginal costs, 22
  - employment and, 205–6
  - non-accelerating, 66
  - transactions demand, relation with, 28
  - wages and, 205–6
- inflationary gap, 22
- interest, rate of, 91, 272
- aggregate demand and, 58
  - deflation and, 88
  - determination of, 87, 89
    - finance motive in, 89–90  - disturbing effect on confidence, 52–3, 62, 74
  - effect on demand for money, 87
  - endogenous, 54
  - exogenous, 54
  - inelasticity of investment and, 199, 212

- liquidity preference and
  - function, 55
  - schedule, 87
- long-term, 52, 62, 74, 93, 212
- marginal productivity (or efficiency)
  - of capital and, 57, 72
- as a monetary phenomenon, 63
- 'natural,' 18, 83
- intertemporal consumption preference, 40
- investment, 281n4, 282n7, 306, 333–5, 337–8, 344–5, 347, 349
  - autonomous, 114, 313–15, 318n17, 325
  - classical economists' view, 82–3
  - conflicts between savings and, 41
  - consumption, relationship between, 21, 55, 117, 188–90, 205, 212, 229, 250, 289, 291–2, 316
  - cyclical pattern of accumulation and, 35, 38, 41
  - decisions, 4, 42, 92–3, 96, 115–16, 169, 185, 194–6, 212, 230, 244, 258, 261, 285, 310–11, 325, 334, 344
  - determinants of, 86, 266–7, 271–66, 282n7
  - dual role of, 3, 8, 126, 230, 292–3
  - in economic cycle theory of Kalecki, 192–7
  - entrepreneurial reactions and, 92, 116
  - ex ante* and *ex post*, 306–7
  - fiscal policy, Kalecki's framework, 226–9
  - fixed, 54
  - function in the Del Monte model, 285
  - in *The General Theory*, 90–1
    - long-term expectations, 41
  - impact of, 88
    - on income level, 293
    - unused capacity on, 2
  - induced, 260, 310, 313–15, 325, 328n4
  - innovation and, 240, 244–8
  - inventory, 54–5, 297, 300
  - Kalecki's approach, 4, 92–3, 114–16, 125, 170, 297–8, 300–2
    - in economic cycle theory, 192–7
    - link between capitalists' savings and investment, 212
- Keynes's approach, 86
  - determinants of, 86
  - as a function of interest rate, 52–3
  - logical flaw in analysis, 91
  - planned investment (investment *ex ante*), 29
    - and saving, relation between, 20–1
    - Marxian discussion, 125
    - multiplier effect of, 228
    - in neoclassical economics, 83
    - oligopolistic firms and, 2, 271–2, 275–6, 282n11, 283n14
    - orders, 4, 194, 293
    - production decisions and, 54
    - profit and, 162, 170–1, 226–9
    - proportion of investment decisions over capital stock, 285
    - rate of interest and, 23, 71, 99, 113, 241–2, 266, 272
    - replacement, 292, 300
    - Robinson's approach, 244–8
    - saving and, 76–8
    - spending as a source of effective demand, 114
    - State, and full employment, 197–9, 201–2, 205, 229–33
    - surplus capital and, 35–6, 39–40, 271, 274, 279, 307
    - unintended inventory, 54–5
  - involuntary unemployment, 16–17, 45, 52–3, 70–1, 89
  - IS-LM model, 24–5, 50–67, 69–70
    - aggregate supply and aggregate demand curves, 64–6
    - Chick's position on, 75–8
    - development of, 50–1, 54
      - 1950s and 1960s, 59–63, 73–4
      - 1980s and 1990s, 63–6
    - general equilibrium approach of, 62
    - to Hicks's and Harrod's comments, 71–3
    - Hicks's equations, 56–7
    - Keynes's reaction to, 55–9
    - Reddaway's discussion, 73
  - Italian General Confederation of Labour (CGIL), 2
  - Japanese economy
    - balance of payments problems, 42
    - integration into American system, 42
    - reconstruction and capital accumulation, 42
  - Johnson, C., 42
  - Johnson, H. G., 51, 59, 156n3
  - Kahn, R. F., 18, 21, 101n22, 241, 245

- Kaldor, N., 23, 123, 129n6, 153, 156n3, 228, 255, 259  
 concept of labor, 274, 278, 335  
 speculation and economic stability, 23–4
- Kalecki, M., 22, 24, 38–9, 90–1, 93, 101n17, 102n28, 102n29, 102n31, 102n32, 102n35, 102n43, 102n49, 107, 109, 118, 121, 124–5, 127, 129n1, 129n3, 129n18, 141–56, 156n2, 156n3, 157n4, 157n5, 157n7, 157n9, 157n12, 158n13, 166, 168–9, 173, 174n7, 179–81, 183, 186n2, 187n6, 192–3, 195–7, 199, 201, 203, 206, 206n5, 206n6, 210–13, 214n2, 214n4, 214n5, 221, 222n4, 222n8, 226–31, 234–5, 237, 237n1, 237n2, 237n5, 240–1, 245, 247–50, 254–61  
 analysis of capitalist economies, 211  
 analysis of pricing, distribution and the determination of output, 181–2  
*An Essay on the Theory of Business Cycle*, 111  
 approach to  
   contemporary Marxian economics, 125–6  
   economies, 108  
 biographical note, 110–11  
 budgetary deficit, 202–3, 205–6  
 capacity utilization in business cycles, 135–6  
 collected works, 133–4  
   academic and mathematical economics, 134  
   on business cycle, 133  
   on full employment, 133  
*Collected Works of Michał Kalecki*, 3  
 comments and reviews of works, 122–3  
 comparison of cartelized economy and free competitive economy, 136  
 competitive process in capitalist economy, 181–2  
 contributions  
   to Cambridge economics, 109–10  
   to macroeconomics, 82, 107–9, 135  
 determination of level of profits, 226–7  
 development of capitalism, 180–1, 261  
 differences between classical economists and, 180–2  
 differences between Keynes and, 94–9  
 distribution, 98  
 imperfect competition/real wages, 98  
 money supply, 98  
 relations between monetary and real sectors, 98  
 role of macroeconomics and of microfoundations, 96–8  
 uncertainty and expectations, 99  
 distinctions  
   between ‘inside’ and ‘outside’ money, 90  
   between long-period analysis and short-run analysis, 182  
   between ‘normal’ or ‘desired’ levels of capacity utilization, 185–6  
   between workers and capitalists, 92  
 dynamic behavior of a modern capitalist economy, 138  
 early writings on capitalism, 111–13  
 economic role of state, 118–22  
 economics today, 123–7  
 effective demand, theory of, 2–3, 107–9  
 employment and output, 93, 95–6  
   and output, 92  
 equation for gross real profits, 300–2  
 export and import of goods and services, 227–8, 237n2  
 financial sector, 93  
 historical materialism, analysis of, 124  
 as imperfectionist, 210–12  
 investment analysis, 92–3, 114–16  
   determination of investment, 115–16  
   financial sector’s role in, 93  
 level and distribution of income, effect of, 91–2  
 link between capitalists’ savings and investment, 212  
 long-period equilibrium positions, 183  
 microanalysis of prices, 178  
 micro- and macro-analysis, 116–17  
 monetary analysis, 212–13  
 monetary and real sectors, relation between, 93–4  
 monopolistic economy, conception of, 138–40  
 monopoly capitalism, 178–9

- Osiatynski's notes and editorial  
 comments on Kalecki's work,  
 127–8
- political aspects of full employment,  
 250–1
- postwar contributions, 137–8
- potential to fill in gaps in the  
 Kaleckian project, 125–6
- price flexibility and full employment,  
 109–10
- principle of increasing risk, 273, 282n7
- profit theory, 116–17
- quantity theory of money, 211
- rate of utilization of capital goods  
 sector, 183–5
- relationship between Marxian  
 economics and, 124
- responses to criticisms, 9
- role of monetary considerations, 89–90
- theory of autonomous cycles in  
 capitalist economy, 113–18
- Theory of Economic Dynamics*, 5
- trade cycle theory, 107, 115, 118, 127,  
 145, 172, 241, 287–8, 292–8
- unemployment and business cycle, 39
- use of Marxian reproduction schemas,  
 180
- value theory, 178
- views about government expenditure  
 and investments, 4
- wages of producer-goods sector and  
 surplus of consumer-goods  
 sector, relation between, 113
- 'The world financial crisis,' 110
- see also* economic cycle theory of  
 Kalecki; fiscal policy, Kalecki's  
 framework; microfoundations,  
 Kalecki's analysis of; pricing  
 theory, Kalecki's
- Karl Marx–Rosa Luxemburg theory of  
 effective demand, 2
- Kerr, P., 240, 242, 243, 248, 255, 261,  
 262n5
- Keynes, J.M., 18–26, 28–9, 31n4, 40,  
 44–8, 55–6, 59–60, 63, 67, 70–1,  
 74–5, 79n3, 80n7, 82, 98, 100n6,  
 102n42, 167, 241, 248, 249
- aggregate demand, 20
- aggregate supply function, 47
- analysis of liquidity preference, 26, 51
- assumption of rigid money wages, 52
- concept of equilibrium and role of  
 equilibrium analysis, 70–1
- consumption and investment,  
 analysis of, 48, 59, 83, 86, 91–3,  
 116–17, 168–9, 227
- creditor nations, 27
- criticism of Hicks, 55–6
- demand for and supply of money,  
 analysis of, 20, 27
- differences between Kalecki and, 94–9
- distribution, 98
- imperfect competition/real wages, 98
- money supply, 98
- relations between monetary and  
 real sectors, 98
- role of macroeconomics and of  
 microfoundations, 96–8
- uncertainty and expectations, 99
- disequilibrium, understanding of, 70,  
 285
- dominant role of the USA in post-war  
 period, 27
- employment, 47
- explanations of financial crisis, 22
- factors affecting aggregate supply, 63
- factors determining exchange rates,  
 27–30
- floating exchange rates, 28
- precautionary demand for foreign  
 exchange, 28–9
- purchasing power parity, 30
- rate of interest, 29
- speculative demand for foreign  
 exchange, 28–9
- supply of and demand for foreign  
 exchange, 28
- transactions demand for foreign  
 exchange, 28–9
- The General Theory*, *see The General  
 Theory*
- investment
- determinants of, 86
- as a function of interest rate, 52–3
- logical flaw in analysis, 91
- and saving, relation between,  
 20–1
- level of output and employment, 71
- link between accumulation and the  
 rate of profits, 40



- Keynes, J.M., – *continued*  
 long-run expectations, 20, 41, 46–7, 78, 246–7  
 marginal efficiency of capital, 55  
 marginal productivity of capital, 57  
 and Marshallian particular equilibrium, 71  
 method  
   comparative static analysis, 67, 70, 75, 79, 248–9  
   IS-LM model, 24–5, 50–67, 69–70  
   and Marshallian economics, 16, 24, 27, 43, 47, 52, 67, 241  
   monetary sector, 19, 24–5, 87  
   recursive method, 24, 60, 67  
   relation between cause and effect of economic variables, 24  
 planned investment (investment *ex ante*), 29  
 price of consumption goods, 47  
 problems of post-war reconstruction, 27  
 rate of interest, determining, 26, 29  
   endogenous money supply and, 53–4  
 relation between monetary and real sectors, 87–8  
 role of money in an open economy, 25–7  
 short-period average cost curve, 45–6  
 theory of employment and output, 51–5  
   reliance on monetary policy and wage cuts, 52–3  
*A Tract on Monetary Reform*, 18  
*A Treatise on Money*, 18, 26  
 wage relativities, 47  
 see also *The General Theory*; IS-LM model; Marshallian economics
- Kinda-Hass, B., 22, 241, 245
- King, J., 144
- Kowalik, T., 121, 127, 129n1, 129n3, 235, 254–5, 257
- Kregel, J., 101n23, 102n44, 123, 324
- Kriesler, P., 18, 38, 100n6, 101n11, 101n18, 101n29, 101n30, 102n32, 102n33, 102n36, 102n37, 102n38, 102n39, 116, 123–4, 129n4, 144, 157n4, 157n8, 157n9, 165–6, 172, 174n10, 174n18, 178, 186n5, 187n9, 209, 212–13, 221, 222n2, 222n3, 222n6, 222n9, 235, 237n4, 245, 247, 249, 251n2, 255, 257
- Krowowska, E., 6
- labor, 36, 48n3, 274, 278, 331, 334–5  
 aggregate demand for, 66  
 capital goods–consumption goods vs labor–machine ratios, 345–8  
 conditions for allocation of, 345–8  
 division of, 269  
 employment and, 47  
 and industrialization, 337–8  
 innovations and, 269, 271–2  
 Kaldorian concept of, 274, 278, 335  
 market, 65–6, 265  
 and wages, Marx's point of view, 39  
 as scarce factor, 278
- Lange, O., 6, 113, 124, 254, 272
- Laramie, A., 126
- Lenin, V.I., 135, 269  
 characterisation of 19th and early 20th century capitalism, 1  
 connections between monopoly capital and imperialism, 134–5  
 reformulation of Marx's schemes of reproduction, 332
- Leontief–Sraffa systems, 6
- Lerner, A., 143, 246  
 critique of Keynes's theory, 246  
 measure of the degree of monopoly, 143
- liquid investment markets, 266, 268, 279
- liquidity preference, 24, 26, 51, 54, 55, 56, 57, 58, 59, 62, 63, 74, 77, 78, 79, 87, 89  
 Harrod's views, 57–8  
 Hicks's views, 56–7, 63, 74–5, 78  
 Keynes's analysis of, 26, 51, 54, 58, 62  
 in loanable funds theory, 17, 20, 22, 77, 83, 297  
 rate of interest and, 55, 87, 89
- long-period equilibrium, 79, 224, 242  
 activity and employment, 242–3, 248  
 vs Kalecki's short run, 40–1, 182–3, 186, 221, 248  
 prices, 177, 250
- long-term expectations of investment, 20, 41, 46–7, 78, 247  
 rate of accumulation and profitability, 246–7

- Lowe, A., 5, 6, 185, 333, 347  
*The Path of Economic Growth*, 5
- Lucas, R. E., 259
- Luxemburg, R., 1, 6, 108, 119, 122, 125, 129n5, 206n5, 235, 254–61, 269  
*The Accumulation of Capital*, 254, 257, 272
- MacFarlane, B., 8, 102n33, 102n37
- macroeconomics, *see* Harrod, R.F.; Kalecki, M.; Keynes, J.M.; Marx, K.
- Magdoff, H., 5, 265–9, 271, 280  
 Marxist theme of capitalistic accumulation, 269–73  
 notion of monopolistic capitalism, 267–8, 271
- Mainwaring, L., 187n7, 224
- Mair, D., 126
- Malinvaud, E., 34, 335–6, 349
- marginal efficiency of capital, 19, 23–4, 46, 53–5, 58–9, 62, 64, 72, 86–9, 91, 192–3, 198, 245–6, 282n7
- marginal productivity of capital, link with rate of interest and, 57, 72
- Marglin, S., 175n20, 333
- Marris, R. L., 22, 101n20, 101n27, 102n46
- Marshall, A., 10, 16, 18–19, 21, 24, 27, 45, 67, 71, 95, 101n9, 162
- Marshallian economics, 16–17, 67, 73, 241–2  
 “*ceteris paribus* pound,” 10, 74  
 competitive market, behavior of, 16–17  
 equilibrium approach, 71  
 full employment, 17  
 accumulation process, 17  
 market for loanable funds and, 17  
 short-term fluctuations around, 18  
 long-period competitive prices and quantities, 18  
*Money, Credit and Commerce*, 16  
 role of money, 18  
 short-period analysis, 52, 113, 242, 287  
 supply function, 47  
 theory of short-period competitive pricing, 21  
 wage rate adjustments, 17
- Marx, K., 1, 4–6, 36, 81, 83, 132, 135, 160, 237n9, 240, 243, 245, 269  
 capitalistic accumulation, 269–73  
 capital goods sector, role of, 283n15  
 classical Marxism, 269–73  
 connection between endogenous money and development of modern capitalism, 270–1  
 debate over the future of capitalism, 333  
 distinction between money capital and commodity capital, 267  
 formation of cartels, 270  
 Marxian economics, 34–7  
 capitalism, development of, 35–6  
 comparison between Kalecki and, 39  
 competition, notion of, 36, 274–5  
*Das Kapital*, 35  
 dynamics of real wages and price, 39  
 formation of a general rate of profits, 36–7  
 inverse relationship between wage rate and rate of profits, 35  
 joint stock companies, 271, 282n5  
 law of capital accumulation, 35–6  
 behavior of accumulation, 35–6  
 competitive accumulation, 281n4  
 cyclical accumulation, 277–9  
 means of consumption and means of production, 331–2  
 mechanism of the Reserve Army of Labor, 35–7, 39, 276–8, 283n12, 336  
 theory of business cycle, 35  
 theory of cyclical growth, 37, 39  
 notion of cyclical accumulation, 277  
 observations about oligopolies and innovations, 271–3  
 oligopoly theory, 271, 273, 282n6  
 problem of ‘realisation of surplus value’, 122  
 process of credit creation, 270  
 schemes of production and reproduction, 5–6, 106, 122–3, 166, 177–8, 180, 227, 239, 254–62, 269, 281n15, 283n15, 332, 334, 346  
 equations of expanded reproduction, 108, 113, 256, 269  
 in equilibrium, 256  
 interpretation of Kalecki and Luxemburg, 254–62, 269  
 limitations in Luxemburg’s analysis, 260–1

- Marx, K., – *continued*  
 Tugan-Baranowski and Luxemburg discussions, 256–8  
 Traverse-based critique of Keynesianism, 333  
*Wages, Prices and Profits*, 39, 275, 283*n*13
- Marx–Goodwin framework of competitive capitalism, 277
- Marx–Robinson framework for condition of equilibrium, 189–90
- Meade, J.E., 20, 25, 31*n*2, 87
- Medio, A., 182
- Meek, R. L., 101*n*22, 174*n*3
- microfoundations, Kalecki's analysis of analysis using Marx's reproduction schemas, 168–9  
 background, 165–6  
 capitalists' income and capitalists' consumption, 168–9  
 employment–money wages link, 168–9  
 historical perspectives, 162–5  
 implications, 171–2  
 micro/macro link, 169–72  
 modifications, 172–3  
 paradox of thrift, 170–1  
 of pricing and distribution, 171  
 role of macroanalysis, 167–9, 174*n*18
- Milgate, M., 240
- Minsky, H., 127
- Mirrlees, J. A., 255
- Moggridge, D., 25
- Mott, T., 174*n*17
- money  
 'inside' and 'outside,' 90  
 role of  
 in an open economy, 25–7  
 Marshallian economics, 18  
*see also* money supply
- money capital, 267, 281*n*4, 332
- money supply, 20, 24, 95, 212–13  
 assumption of an endogenous, 53  
 Keynes's analysis, 16, 20, 87, 89, 91, 212  
 differences between Kalecki and, 93, 95, 98  
 nominal, 52  
 nominal aggregate income and, 211  
 rate of interest and, 53–4
- monopolistic capitalism, 120, 124–5, 134, 136–8, 140, 178–9, 181, 187*n*7, 257, 268, 271, 273–9
- Baran-Sweezy-Magdoff conception, 268  
 classical Marxism, 269–73  
 competition and, 273–9  
 share of profit utilization rate growth and profit rate, 285–6  
 structural maturity and, 273–9
- Monopoly Capital*, 5, 237*n*6, 271, 272, 273, 276
- Morishima, M., 333, 337
- multiplier, 18, 20, 25, 48, 57–9, 63, 72, 86, 91, 110, 231, 258, 287–8, 290, 292–3, 305, 322  
 changes in the level of profits on the size, 39–40, 226, 228–30, 271, 274, 291–3, 302  
 effect of investment, 228  
 effect on income, 21  
 full employment, 4  
 in terms of real income, 48  
 wage goods sector, 229–30  
*see also* Harrod, R.F.; Kalecki, M.; Keynes, J.M.
- Murfin, A., 157*n*10
- Nakamura, T., 42
- Nell, E. J., 182
- neoclassical economics, 83–4, 101*n*9, 161, 178, 276  
 dichotomy between monetary and real analysis, 84–5  
 distribution in, 98  
 imperfect competition, 98  
 investment and saving, 83  
 level of employment, 83  
 'neoclassical' general equilibrium, 84  
 price level, 83  
 uncertainty and expectations, 99
- Nevile, J.W., 7, 9–11, 44, 50, 68*n*8, 69, 79*n*2, 213, 245, 289, 307, 311, 318*n*19, 319, 321
- oligopoly, 44, 116, 148–9, 150, 271–3, 276  
 demand-determined oligopolistic economy, 3  
 expansion of investment in, 2, 271–2, 275–6, 282*n*11, 283*n*14  
 innovations and, 271–2  
 oligopolistic firms, 2, 39, 271  
 profit margins of, 271  
 Sylos-Labini theory for, 271–2

- Osiatynski, J., 100n4, 100n6, 110, 114, 122, 124, 126, 129n8, 172, 174n10, 174n11, 175n21, 210, 214n1, 242–4, 247–8  
*Collected Works of Michał Kalecki*, 133  
ownership of capital, 266, 282n7, 349
- Parguez, A., 40
- Parkin, M., 65, 66
- Pasinetti, L. L., 31n6, 38, 69, 74, 110, 173, 174n9, 175n23, 175n24  
criticism of IS-LM model, 69, 74
- Pepe, A., 2
- perfect competition, 45, 83, 95, 142, 179, 210, 219, 274, 287, 295  
Walrasian attributes of, 45
- Pigou, A. C., 18, 75, 90, 95, 100, 101n9, 109–10  
on money, 18, 83–4  
theory of employment, 75  
criticism of Keynes's theory of unemployment, 90
- Pigou/real-balance effect, 90–1, 109
- political trade cycle, 118, 250, 251
- precautionary demand for foreign exchange, 28  
during Bretton Woods years, 29
- pre-Keynesian theory, 15, 16–18  
classical economics, 82–3  
neoclassical economics, 83–4
- pricing theory, Kalecki's, 8–9, 141–56, 249  
analysis of pricing and imperfect competition, 108  
analysis of share of wages, 220  
average (prime) costs, 152  
class struggle and distribution of national income, 155–6  
common elements, 142  
degree of oligopoly, 149  
determinants of distribution of national income, 143–6  
distinction between partial and general equilibrium analysis, 218–19  
early formulation (1939–42), 146–51  
effective demand, analysis of, 250  
industry's average price, calculation of, 153–4  
industry's supply curve, 148  
“Kaleckian approximations” of constant average variable and marginal costs, 146–51  
in manufacturing industry, 250  
in oligopoly, 148–9  
parameters defining pricing decision of a firm, 152–3  
percentage gross margins, 152  
“postulates”  $n < 1$ , 154, 157n12  
prices of manufactured goods, determination of, 217–18  
problems in method of weighting prices, 153  
in pure imperfect competition, 147–8  
role of elasticity, 146, 150, 156n3  
role of intermediate goods and capital goods, 218, 221  
in Sraffian framework, 216–22  
Steedman's examination of, 216–22, 224–5  
use of ‘average mark-up,’ 217–20  
use of tools of “orthodox” microeconomic theory, 150–1
- profit multiplier, 226–8
- profits, 125–6, 137  
rate of, 122, 137, 177–9, 181–2, 187n7, 276, 285–6, 293, 300, 336–7, 342  
in capitalist economies, 125  
competition and, 83  
cyclical variation in, 37–8  
expression of, 35–6  
Kalecki's analysis, 93, 170, 226  
link between accumulation and, 40, 134, 260, 274, 277  
mathematical average, 187n7, 189–91  
minimal, 266  
relationship between wage rates and, 184, 229, 236  
relationship with investments, 114  
Ricardo's analysis, 179  
uniform, 181–3, 185, 221  
role of government expenditure and of exports in promoting, 227  
size of surplus and, 39–40, 271, 274, 291–3
- propensity to consume, 87–8, 292, 302, 311, 326  
aggregate demand and, 58  
effects of a rise in, 61  
out of profits, 226–8  
policy change and, 74  
rate of new investment and, 52–4, 70–1  
reduction in prices and, 90

- propensity to save, 38, 170, 226, 260, 282n6, 286, 339  
 Harrods' approach, 296, 306  
 Kalecki's approach, 38  
 level of industrialization and, 335  
 out of profits, 35  
 relationship between marginal and average, 291–2  
 pure competition, 45, 47, 48
- quasi-monopolistic imperfect competition position, 145
- quasi supply curve, 150
- Rao, B. B., 68n8, 79n2
- rational expectations, 70, 99, 246
- Reddaway, W. B., 25, 73, 80n7
- Regan, P., 144
- Reynolds, P., 156n3
- Riach, P.A., 123, 144
- Ricardo, D., 31n6, 83, 128, 162, 172, 173, 174n3, 179, 180  
*Principles of political economy and taxation*, 180  
 rate of profits, 179
- Robinson, A., 109
- Robinson, J., 6, 15, 18, 24, 50, 51, 62, 69–70, 81, 96, 100n3, 101n8, 101n17, 102n33, 108–10, 117, 123–5, 129n2, 129n6, 129n17, 145–7, 158n13, 163, 170, 174, 174n3, 175n22, 183, 239–51, 251n4, 254–6, 260–1
- banana diagram, 248, 260
- criticism of Harrod, 256
- discussions of Keynesian theory, 240–4  
 effect of innovations upon investment, 247–8  
 investment decisions, 244–8  
 nature of accumulation and stagnation in capitalist economies, 247  
 pricing theory, 249
- distinction between micro and macro analysis, 249
- influence of Kalecki, 248
- notion of equilibrium, 248–9
- papers published, 240
- political trade cycle, 250–1
- reading of Rosa Luxemburg, 260–1
- Rogers, C., 175n23
- Roncaglia, A., 173
- Rostow, W. W., 156n3
- Rowthorn, Bob, 125–6, 129n6, 156n3, 158n14, 174n13, 183
- Salvadori, N., 141, 149, 157n11, 158n12, 158n14
- Samuelson, P.A., 109, 183, 186, 205, 322, 326
- Sardoni, C., 100n1, 102n33, 102n35, 129n7, 129n14, 174n2, 174n5, 186n1, 186n4, 255–6, 262n1
- Sawyer, M., 102n31, 102n34, 115, 126, 129n14, 129n20, 209, 213, 245, 251n2  
*Microeconomics, Macroeconomics and Economic Policy*, 6
- Say's law, 16, 21, 75, 83, 95, 108, 211, 256
- Schaller, M., 42
- Schefold, B., 129n11, 222n11
- Schumpeter, J., 136, 268, 270, 281n4, 282n8, 292
- self-financing, 272–3, 282n8
- Shapiro, N., 22
- Short-run analysis  
 Kalecki's, 40–1, 182–3, 186, 221, 248  
 Marshallian economics, 52, 113, 242, 287
- Simple Keynesian Model, 53  
 assumption of endogenous interest rate and exogenous money supply, 53
- Smith, A., 24, 174n3
- Smyth, D., 61
- Solow, R. M., 255, 339
- speculative demand for foreign exchange, 28  
 international capital movements and, 29
- Sraffa, P., 145, 219, 222n10, 340  
 Sraffa-basic commodity, 224  
 Sraffa framework, 217, 221  
 Sraffa-type prices, 342
- stagnation tendencies of capitalist economies, 109, 267–8, 271–2, 273–4  
 Bretton Woods system and, 231–2  
 Kalecki's analysis, 125, 134, 138–9, 207n8, 232, 236, 240, 247  
 labour-saving technology and, 236

- Marx's analysis, 257  
of monopolistic capitalism, 268, 278  
of the 1930s, 267  
relation between oligopoly and, 271–3,  
282n8, 337  
role of investment and innovation,  
240  
Steindl's analysis, 280
- state, economic role of, 118–22  
armaments expenditure, impacts of,  
119  
level of employment, 119–20  
production and reproduction of class  
relations of capitalism, 121–2  
short-term *ad hoc* corrections to  
market imperfections, 121
- Steedman, I., 9, 182, 216–22, 224–5  
examination of Kaleckian pricing  
theory, 216–22, 224–5
- Stegman, T., 222n7
- Steindl, J., 101n22, 115, 158n13, 179, 180,  
181, 186, 207n8, 240, 259, 268
- Steve, S., 2, 5, 206n1, 207n10
- Stiglitz, J. E., 22
- structural disequilibrium, 340, 345–6,  
350n1
- structures  
financial, 75  
of input–output system, 228  
of Kalecki's models, 117  
market, 22, 44, 297  
of product markets, 86
- surplus approach  
of the consumer-goods sector, 113  
degree of capacity utilization, 137,  
182–4, 187n8  
Kalecki's method, 124–5, 139, 177–86,  
187n7  
Marxian view, 162, 168
- Swan, T. W., 113, 255, 298n3
- Sweezy, P., 5, 129n16, 158n13, 179, 181,  
187n7, 237n6, 265, 267  
concept of labor, 278  
on innovations, 272  
Marxist theme of capitalistic  
accumulation, 269–73  
*Monopoly Capital*, 5, 271–2, 276  
notion of monopolistic capitalism, 5,  
267–8, 271, 273–4, 278  
on unemployment, 276–7
- Sylos-Labini, P., 2, 6, 153, 156n2, 156n3,  
158n13, 186, 222n5, 237n9,  
272, 275, 280, 281n2, 281n4,  
282n10  
*Oligopoly and Technical Progress*, 4–5,  
271
- Targetti, F., 22, 241, 245, 298n4
- Taylor, L., 22, 29–30
- Thomas, J., 101n21, 102n47
- Tobin, J., 266
- Toporowski, J., 6, 128
- trade cycle theory  
comparison of Harrod and Kalecki,  
295–8  
Harrod's, 287–92  
controversies, 289–90  
determinants of rate of growth of  
consumption, 291  
factors of stable equilibrium  
position, 290  
importance of monetary factors, 297  
interaction of multiplier and  
accelerator, 290  
principles or underlying  
assumptions, 289  
relationship between marginal and  
average capital-output ratio,  
291–2
- Kalecki's, 292–5  
in imperfectly competitive  
conditions, 295  
influence of investment on level of  
income, 293  
level of capacity utilisation, 292–3  
mathematical analysis, 300–2  
money market, 294  
role of profits, 293–4  
role of wages, 295  
system of mixed-difference  
differential equations, 294
- transactions demand for foreign  
exchange, 28–9
- Traverse theory/Traverse analysis  
actual state of disequilibrium, 333–4  
multiple capital goods and unused  
capacity, 344–8  
production model, 340–4  
structural disequilibrium, 346
- Trustified Capitalism, 268

- Tugan-Baranowski, M., 255–6, 334–7  
analysis of capitalist system, 258–9  
expansionary effects of expenditure  
on armaments, 258
- UK economy, 26
- unemployment, 3, 9, 16, 77, 81, 83,  
108–10, 124, 126, 161, 163–4,  
198–9, 203–4, 209, 211, 272,  
336–8  
in capitalist economies, 210–12  
causes of, 245  
critics of Keynes's, 90–1, 94–5  
effective demand and, 37–9  
equilibrium, 247  
fiscal policy and, 226, 232–6  
involuntary, 16–17, 45, 52–3,  
70–1, 89  
in monopolistic capital, 274,  
276–8  
substantial, 55, 61  
survival of capitalism and, 235–6, 250  
technological, 36  
unintended inventory investment, 54–5
- Varga, ER., 112, 136–7
- Veneziani, R., 262*n*2
- Vines, D., 26
- Walrasian economics  
attributes of perfect competition, 45  
equilibrium models, 10, 57, 69–70,  
72–4, 79
- Weintraub, E., 163, 164, 174*n*1
- Wold, H., 60
- Wong, S., 174*n*12
- Woods, B., 27, 29, 129*n*6, 231
- Young, A., 24
- Young, W., 79*n*5
- Zaibatsu system, 42