49

Robert E. Rowthorn (1939–)

Paul Ormerod

1 Introduction

Robert (Bob) Rowthorn's writings embody the fine tradition of Cambridge radicalism. His interests have ranged widely, from the problems of Britain's regions to more general questions of economic development, to key issues relating to the distribution of income between capital and labour, and to important social questions such as marriage, family structure, and immigration. In short, throughout his career, Rowthorn has worked as a political economist, addressing issues of importance to policy, rather than simply displaying mathematical prowess in abstruse areas of economic theory.

Rowthorn could so easily have followed a conventional academic career, his CV filled with technical papers in journals such as *Econometrica* or the *Review of Economic Studies*, unconcerned about major political issues. He grew up in South Wales, but his background was very much that of the conservative middle class, his father being a senior officer in the police force. He won a scholarship to Jesus College, Oxford, where he read not Philosophy, Politics, and Economics (PPE), but mathematics. Rowthorn was an outstanding student, winning the prize for the best results of his year in the final examinations. A research career

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beckoned, and his graduate work began in mathematics, before he switched in 1962 to take the BPhil in economics, then, as now, a two-year course.

In the 1960s, when Rowthorn was receiving his initiation into economics, Cambridge scholars such as Nicholas Kaldor and Joan Robinson were major world figures within academic economics. Indeed, it was to Cambridge, and its challenges to orthodox thinking, to which Rowthorn was attracted, becoming a Research Fellow at Churchill College in 1964. Rowthorn's politics were increasingly left wing; in fact, for many years he was a member of the Communist Party. The British Communist Party, it must be stressed, by the 1960s had become very distinctly non-Stalinist, and over the next couple of decades, many interesting contributions to political economy were made by its members. Rowthorn himself has never been willing to subscribe to a dominant orthodoxy of whatever kind. Indeed, throughout his entire career, his work has challenged received opinions on a wide range of topics. In the atmosphere of the Cambridge of the 1960s, he flourished. His intellectual qualities were obvious, and by the early 1970s, he had established himself as a Fellow of King's, a University Lecturer, and a member of the Faculty Board.

To modern-day academics, continually harassed by the demands of the Research Excellence Framework, the fact that Rowthorn published no papers until 1970 may seem incredible. But Cambridge, and King's College in particular, has over the years proved the ideal environment for a scholar of his abilities. Freed from the pressure of producing a constant stream of articles in so-called top journals, Rowthorn has been able to apply himself to whatever topic he considered important.

In return, he has been a true servant of both the College and the Faculty. Within King's, he was a dedicated teacher of both economics and econometrics for decades. He has served on the College Council, the Estates Committee, the Investment Committee, and the Senior Salaries Committee. Within the Faculty, he rose to become a Professor in 1991, serving on many committees and becoming Head of Department in 2002.

Rowthorn developed close international academic links, having visiting appointments at many universities, especially in Australia, Italy, and Japan. In the late 1990s, he had several spells at the International Monetary Fund (IMF). At a stage in his career when many academics are effectively resting on their past achievements, during the decade of the 2000s, when well into his 60s, Rowthorn paid many visits to the Santa Fe Institute. Santa Fe is renowned of course for the innovative, multidisciplinary nature of its work.

His work has not been confined to the world of academe. In addition to the IMF affiliation already mentioned, Rowthorn has been a frequent consultant to both the United Nations Conference on Trade and

Development (UNCTAD) on global integration and structural change and the International Labour Organisation on employment and wages. These topics have been central to his academic writings, and as a political economist, Rowthorn has combined both theory and practice with these links. In keeping, too, with his long-standing interest in regional policy, he has consulted with the European Commission and various UK ministries over the years. His interest in policy remains just as strong as it has ever been. In 2014, for example, he and I collaborated on a paper for the Mayor of London considering long-term scenarios for the UK economy in and out of the European Union.

Rowthorn has never been afraid to court controversy. Perhaps the most notorious episode, which almost ended his career, was the famous Garden House riot in 1970. Greece at the time was in the final throes of a military government. A major promotional event for the regime was due to be held at the Garden House, then, as now, one of the leading hotels in Cambridge. As a charismatic young Assistant Lecturer, Rowthorn had great status amongst the enraged student left. A demonstration took place which rather got out of hand. Substantial damage was caused to property, and several students were convicted and sent to jail. After what were perhaps a few anxious moments, Rowthorn survived the episode unscathed.

During the past 15 years or so, again at a stage in his career when many academics have laid their laptops to rest, Rowthorn has provoked the rage of the metropolitan liberal elite with a series of powerful articles in political journals such as *Prospect*. In this journal, he wrote a seminal attack on the concept of multiculturalism, one which gave other prominent centre–left intellectuals the opportunity to express their own long-harboured doubts. He ran a study group and wrote extensively on family structures, pointing out the damage caused, particularly to the poor, by the fashionable idea that all such structures are of equal merit in terms of outcomes. More recently, he has intervened in the debate on the impacts of immigration.

2 The Distribution of Income Between Labour and Capital: Inflation and Growth

One of the key themes of the Cambridge School was the emphasis which it placed on the distribution of income between labour and capital, and its importance for the macro economy. This was the topic of one of Rowthorn's earlier and most influential papers, 'Conflict, Inflation and Money', published in the *Cambridge Journal of Economics* in 1977. He expanded the article into a book, *Capitalism, Conflict and Inflation*, which was awarded the Isaac Deutscher Memorial Prize in 1981. The Cambridge view of the role of income distribution in macroeconomics is in sharp contrast to that of mainstream, neoclassical economics. General equilibrium, for example, is consistent with *any* distribution of income.

The Cambridge view was inspired by the works of David Ricardo. Although his work was almost entirely theoretical, Ricardo wrote as a political economist, seeking to understand the key issues of his day. A crucial one, of course, was the entirely new phenomenon of industrial capitalism. This was clearly something completely different to anything which had ever existed before. But in the early nineteenth century, when Ricardo was writing, it was not at all clear that the system was sustainable. It might disappear just as quickly as it had emerged. Ricardo placed great emphasis on the distribution of income between capital and labour. An appropriate balance between the two had to be struck in order for long-run economic growth to continue.

Marx also placed great emphasis on the role of factor shares in the evolution of capitalism. It was only later in the nineteenth century, following the work of Jevons and Walras, that economics lost this focus. Economic theory became concerned instead with the problem of refining and making more precise the conditions under which prices which cleared all markets could be found. In many ways, it was a very strange problem for economics to focus on. The theory refers to the most efficient allocation of resources in a purely static world. Given a fixed amount of resources of all kinds, including labour, could a set of prices be found which would clear all markets? It was strange because by the late nineteenth century, the Industrial Revolution was a century old. For the first time in human history, a social and economic system had emerged in which the total amount of resources available was being continually expanded. There may be, indeed there were, short-term fluctuations in total output, but the underlying trend in total output was unequivocally upwards.

The luminaries of the Cambridge School, such as Kaldor, Robinson, and Sraffa, tried to revive the view that income distribution plays a central role in capitalism. This is the background to Rowthorn's 1977 paper. A key policy question of the time was inflation. During the 1950s and 1960s, inflation had been positive but low throughout the West, at generally similar rates across the main economies. During the 1970s, for a variety of reasons, not least the quadrupling of the oil price in 1973–1974, inflation surged into double figures in many countries. Some, such as Germany, succeeded in bringing price rises back under control. In others, such as Italy and the UK, it rose to an annual rate of more than 20%. The various attempts to squeeze inflation down to permanently lower levels were the central theme of economic policy in the West for at least the next two decades.

Rowthorn addressed this crucial issue of political economy from a Cambridge perspective. In his model, labour and capital aspire to particular shares of national income. Workers try and meet their target by securing increases in the nominal wage, and capitalists in turn use price increases in an attempt to secure theirs. If the two shares are compatible and sum to total income, inflation remains constant. But if the sum of the desired shares exceeds national income, the result is accelerating inflation. One problem which capitalists face is that there is resistance on the part of the workers to reductions in the real wage. This is overcome by the use of monetary policy, which affects not inflation directly, but output and hence unemployment. The Marxist concept of the 'reserve army of labour' is invoked, with unemployment being used deliberately as a means of controlling inflation.

This brilliant article explained both the contemporary experience in the West in the 1970s and more general aspects of the inflationary process in the capitalist economies. The paper has received almost 500 citations, but it surely has the potential to become what I might term a 'sleeping giant'. Two such papers spring immediately to mind. Armen Alchian's 1950 paper (Alchian 1950) on evolution and economic theory was decades ahead of its time, anticipating many of the developments in the mathematical theory of evolution in the 1990s and beyond, and dealing ruthlessly with the argument that it is 'as if' firms adopt profit-maximising strategies because only the fittest, following such a rule, can survive. Herbert Simon's 1955 paper (Simon 1955) on behavioural economics is the other, in which he introduces the concept of satisficing, a term which has subsequently been transformed in meaning by mainstream economists and safely neutered. For many years, both papers suffered from relative neglect, but they now have around 5,000 and 11,000 citations, respectively. The theoretical analysis of inflation set out by Rowthorn in his model is, to my mind, of similar intellectual stature.

The oil price shock of 1973–1974 had an obvious and immediate impact on inflation in the developed economies by increasing the cost of inputs. But it was the distributional consequences which explained the subsequent huge divergence in inflation rates between countries. In the short term, until the OPEC countries worked out how to spend their new-found surpluses, the oil price rise was an effective tax on the West. It transferred real national income from the oil-consuming to the oil-producing economies. The willingness of labour to both recognise and respond to this was a crucial determinant of inflation in 1975 and 1976. Rowthorn's concept of real wage resistance was the key factor. In Germany, workers were willing to accept real wage cuts, and by 1976 inflation was only 6%. In contrast, in the UK it was still around 15%. The attitudes of the British labour force were undoubtedly militant, exemplified by the miners' dispute in early 1974 which led to the defeat of the Conservative government in an election called explicitly on the question 'Who Governs Britain?' But the institutional structure of wage setting itself was a major barrier to real wage reductions. In late 1973, the government had agreed a system under which wage increases were brought in almost instantaneously after a particular rate of inflation had been reached. Real wage resistance was effectively institutionalised.

Inflation did moderate from its 1975 peak, in part due to the effects of higher unemployment and in part due to the income policies negotiated with the trade unions by the then Labour government. But even by 1981 it was still in double figures. The Thatcher government, elected in 1979, used tight monetary policies to try to control inflation. But the immediate effect was to generate a sharp recession, comparable in size to that of the 2008–2009 financial crisis drop in output. The unemployment rate, already very high by post-war standards, doubled. Exactly as Rowthorn's model predicted, monetary policy was used to discipline labour and control inflation, which fell sharply.

The breakdown of the Phillips curve meant that economics needed a new theory of inflation. Rather it needed a theory, because the curve was simply an empirically observed relationship, with no formal theoretical basis other than a sort of handwaving around supply and demand. Milton Friedman and Edmund Phelps rose to the challenge and developed the so-called natural rate of unemployment in the 1960s. As Friedman stated in his famous Presidential Address to the American Economic Association in 1968:

> [T]he [natural rate] is the level that would be ground out by the Walrasian system of general equilibrium equations, provided there is embedded in them the actual structural characteristics of the labour and commodity markets, including market imperfections, stochastic variability in demands and supplies, the costs of gathering information about job vacancies, and labor availabilities, the costs of mobility, and so on (Friedman 1968: 8).

The natural rate fairly quickly morphed into the non-accelerating inflation rate of unemployment (NAIRU). The NAIRU is not necessarily time-invariant and can change over time, as the various factors set out by Friedman above evolve. But we might reasonably think that such changes would generally proceed only slowly. More generally, at any point in time, it is implied that there is a unique rate of unemployment consistent with constant inflation. Rowthorn's model has many similarities with this mainstream approach.

A key difference, however, is that for any given set of institutional structures and any imperfections which they might introduce into the workings of the labour market, non-accelerating inflation is compatible with a wide range of unemployment rates. The key determinant is the consistency of the demands for factor shares by labour and capital.

This prediction of the model appears to be supported by the evidence. Over the 1871–2014 period, for example, the statistical technique of fuzzy clustering identifies three distinct regimes[1] in inflation/unemployment space for each of the three main Western economies over this period, the USA, Germany, and the UK.[2] The most frequently observed is the cluster with both low unemployment and low inflation. High growth, and consequently low unemployment, may make it easier for the demands of labour to be met and is therefore consistent with low unemployment. This cluster, for example, characterises the post-war period until the early 1970s. The second cluster contains years with a similar level of inflation to the first, but with an average unemployment rate which is more than doubled. Typical observations in this cluster are from the early 1980s to the late 1990s, when, as mentioned above, monetary policy was used as an instrument to regulate real output. The final cluster, the least frequent in occurrence, has unemployment similar to the first cluster, but very much higher average inflation, well into double figures. Characteristic years here are the First World War, a time of acute struggle between capital and labour and a time when the government feared insurrection on Soviet lines, and the enormously disruptive period embracing most of the 1970s. These are times when historical evidence makes it very clear that not only was consensus over the distribution of factor shares lacking but labour was sufficiently powerful to try to enforce its claims. The episode of the 1970s ended as described above, and the experience of almost a century ago was terminated abruptly by the recession of 1921, by far the most serious drop in output in a single year ever experienced in the UK.

Rowthorn's appreciation of the importance of the distribution of income between labour and capital has been a consistent theme in his writings. Indeed, one of his most recent papers uses his understanding to mount a devastating theoretical and empirical critique of Piketty's best-selling book *Capital in the Twenty-First Century*. Published in 2014 in the *Cambridge Journal of Economics*, a journal much favoured by Rowthorn over the years, the article

[1] With the exception of the hyperinflation in Germany from 1921 to 1924, which is a unique fourth cluster.

[2] See Ormerod et al. (2013).

embodies the hallmarks of his work. A complete grasp of economic theory is combined with careful and meticulous understanding and analysis of the data. It also, as an aside, illustrates Rowthorn's very generous nature. Although his criticisms are powerful, he nevertheless tries to see good in everything and describes Piketty's book as 'brilliant' (Rowthorn 2014a: 1,275).

Rowthorn's summary of the book could not be bettered:

> [I]t shows how the share of income accruing to wealth-owners has increased dramatically in recent decades. It also provides a simple explanation of this development based on the standard neoclassical theory of factor shares. This theory establishes a link between the capital intensity of production and the share of profits in total output. The nature of this link depends on the elasticity of substitution between capital and labour. When this elasticity is greater than unity, an increase in the capital-output ratio leads to an increase in the share of profits. This, in essence, is Piketty's explanation for the increased share of wealth-owners in national income. Thus, the shift in income distribution is due to the over-accumulation of capital: there has been too much real investment (ibid.).

As Rowthorn points out very clearly, the evidence suggests just the contrary. Many studies, in an area in which Bob has been actively involved over the years, show that the elasticity of substitution between capital and labour is in fact less than one. The capital–output ratio, as conventionally measured, has either fallen or been constant in recent decades. The apparent increase in the capital–output ratio identified by Piketty is a valuation effect reflecting a disproportionate increase in the market value of certain assets, a point which Rowthorn uses Piketty's own data to demonstrate. A more plausible explanation for the increased income share of wealth owners is an unduly low rate of investment in real capital. Projecting ahead into the rest of the twenty-first century, Piketty assumes that capitalism will only deliver low rates of growth. One does not have to believe in the perfect functioning of markets to imagine that, if this were to be the case, at some point there would be a large downward revision of asset values, and that so much of the inequality generated in recent decades would disappear.

Economics is inevitably a discipline in which political values are invariably present, no matter how hard mainstream economists have tried to establish claims that it is value-free. Rowthorn certainly has his political views, but his writings are marked by their scientific candour and honesty. In the face of Piketty's book, many Cambridge-trained (or inspired) economists tend to be blinded by their political sympathies. Rowthorn approached the book as objectively as possible and found it flawed. He applied his deep knowledge of both neoclassical and Marxist theory to arrive at his conclusion.

Rowthorn's passion for scientific truth is shown clearly in a 1975 article, a thorough empirical demolition of what was then a fashionable and influential concept known as Kaldor's Law. Kaldor was then one of the dominant figures if not the dominant figure in Cambridge economics. In addition, he had exercised substantial, direct influence over the 1964–1970 Labour government. One of its most controversial measures, the Selective Employment Tax, was almost entirely due to the content of his Inaugural Professorial Lecture in Cambridge, in which he set out his so-called law. Rowthorn was by then reasonably well established in Cambridge, although still very much junior to Kaldor in terms of status and influence. To add piquancy to the setting, both were Fellows of King's.

Kaldor claimed that a strong positive relationship existed between productivity growth and output growth in the manufacturing sector. From this, he drew the conclusion that the UK's poor manufacturing performance by international standards required labour to be shifted from the services sector to manufacturing, hence his tax on employment in the services sector. Kaldor's empirical findings were criticised, and two young members of the Department of Applied Economics, Francis Cripps, one of the anointed princes of Cambridge economics, and Roger Tarling defended him.

Rowthorn's short paper on this, published in the *Economic Journal*, another favourite Rowthorn outlet, is a model of careful applied econometric analysis. One key point, in an object lesson to many young econometricians today, is that he takes the trouble to understand the data. The econometric technique he uses is simple, but the paper is nonetheless devastating. Essentially, Rowthorn showed that, in the international data sets used in the analysis, Japan was clearly an outlier. Not just that, but this single country exercised a decisive influence on the results which were obtained by Kaldor to support his thesis. Nowadays, of course, measures based upon the hat matrix of a regression can be used to formalise this, but Rowthorn's results speak for themselves.

Entirely typically, when Rowthorn revisited this area, in a 1979 paper also in the *Economic Journal*, in his final generous remark, he notes, 'My own views on this matter have changed since I criticised Kaldor for his emphasis on dynamic economies, and I now think they are of great practical importance' (ibid.: 133, fn. 1). This article is not empirical but theoretical and offers a strong critique of Verdoorn's Law, derived from a mathematical model developed by Verdoorn in 1949 and which underpinned much of the kind of empirical analysis carried out by, for example, Kaldor. The gem of Rowthorn's paper is its opening paragraph, which contains the marvellous sentence, '[Verdoorn's] article is frequently cited in British and American literature, yet, as far as I am aware, has never been published in English, and does not seem to have been read very carefully by those who cite it' (ibid.: 131). Again, this is entirely typical of Rowthorn. He took the trouble to read the paper in its original Italian. Rowthorn, it should be said, has a talent for languages and can read several European ones with fluency. For example, he has recently established a small study group which reads Wittgenstein. Rather than rely upon English translations, Rowthorn reads the original German edition of *Tractatus Logico-Philosophicus*, published in 1921.

3 The Dynamics of Capitalism: Unemployment and Wage Inequality

A constant theme in Rowthorn's work has been his focus, both theoretical and applied, on the major aspects of the dynamics of capitalism. He returned to this again in his 1995 paper in the *Oxford Review of Economic Policy*. Here, Rowthorn tackled two issues. First, the sharp rise in unemployment which had taken place in the OECD economies since the 1970s. Second, the increase in wage inequality, which had reversed a long-run trend towards greater equality. Rowthorn returns to the framework of his 1977 macro model discussed above. He argues that both these phenomena can be explained by a shortage of capital stock.

The prevailing orthodoxy at the time was that unemployment was primarily generated by imperfections in the labour market. For example, the quality and skill of the workforce and the level of benefits relative to wages. The work of Richard Layard and Steve Nickell was particularly influential (Layard and Nickell 1986). Rowthorn takes the Layard–Nickell theoretical model and shows that their result that the equilibrium rate of unemployment is independent of the capital stock depends upon the assumption that the production function is Cobb–Douglas, specifically, that the elasticity of substitution between capital and labour is one. Rowthorn points out that, as he did nearly two decades later with Piketty, the empirical evidence is that it is less than one. With this assumption, he shows that in the Layard–Nickell model itself, unemployment depends upon the capital stock.

In Rowthorn's own model, the capital stock is a determinant of both unemployment and wage inequality. An inadequate level of capital stock, whether brought about by premature scrapping or investment being too low, leads to unemployment in economies where the level of flexibility in the labour market is low. Unemployed workers find it difficult to reduce their wages so as to price themselves back into work. Further, the level of benefits in such economies will typically be reasonably high relative to the wage, reducing their incentive to return to work. With flexible labour markets, of course, workers are more willing to reduce wages, and the effect is to create a situation with lower unemployment and higher wage inequality. Again, Rowthorn looks for empirical evidence with which to confront his theory. He finds positive evidence across the OECD in the case of manufacturing but not the services sector.

The 1995 paper is a useful focus for a number of additional themes. In terms of economics, Rowthorn himself rationalises the lack of evidence on the influence of the capital stock on unemployment in the services sector as follows: '[It is] a sector where information technology is so important. [The result] may also be due to the fact that substitution between labour and capital is on average easier in services than manufacturing, and that many services use very little capital at all' (Rowthorn 1995: 34). The insights on the importance of IT and the low level of capital per worker in the services sector are even more important today, two decades after the publication of the article. The services sector is not only by far the dominant sector in the Western economies but a rapidly rising share of services is delivered through the technology of the Internet. Concepts such as the output gap remain of great significance in policy circles. But these developments render it virtually useless. The marginal cost of delivering many services via the web is close to zero, and in such situations output can be expanded virtually without limit. More generally within services, measured output is itself positively related to the level of demand. The price which a restaurant or a consultant, say, can charge at different points in time for an identical service depends upon the state of demand. The higher the demand the higher the price of output, for the same level of inputs and physical embodiment of the output.

The paper also, rather tantalisingly, develops briefly three other themes. The first of these is the importance of the long-term real rate of interest. This was stressed by Keynes but has been almost entirely ignored by many so-called Keynesians in the ongoing debates over austerity. Rowthorn also regards high real rates of interest as a deterrent to capital accumulation and hence creating higher unemployment. He notes that, by the mid-1990s, many OECD economies had run structural fiscal deficits for some considerable time. These, combined with both a relatively low level of personal savings and rising demand for investment funds in developing countries, lead, in this classical model, to high real interest rates. The situation is rather different at present, but the experience of the Mediterranean economies shows how easy it is to generate high rates on government bonds if the markets lose confidence in the fiscal probity of a government. Rowthorn made the point at least as early as his 1995 paper that structural government deficits were not necessarily a good thing. High long-term interest rates will either deter borrowing to invest by depressing animal spirits or encourage companies holding cash to lend it to the government, or return it to shareholders. Either approach reduces the use of available funds for investment. Further, there is a reduction in net wealth of the private sector following the revaluation of the stock of government debt which it holds. All this shows how government debt can reduce economic activity.

The second point, which is a consistent theme of Rowthorn's work, is the importance of institutions. Economies do not operate in abstract settings in which the Walrasian equations are ground out. The particular institutional structure is often of decisive importance to the outcome, or potential range of outcomes. Mainstream economics, to be fair, implicitly assumes a set of institutions such as the rule of law and the enforceability of contracts. But Rowthorn goes much further than this. So in his 1995 paper, for example, the impact of a shortage of capital stock will be seen as a mix of higher unemployment and increased wage inequality, the relative weights of the two depending upon the extent to which any given economy is what Rowthorn describes as 'regulated' (ibid.: 31).

The third theme is the role of profit share in the determination of capital investment. This serves as a potential link to the growth cycle model of Richard Goodwin, also a Cambridge economist, based upon a Lotka–Volterra system of non-linear differential equations, in which the dynamics cast the workers in the role not of prey but of predator on the profit share of the capitalists. Meghnad Desai and I wrote a short appreciation of Goodwin's work in 1998 in the *Economic Journal*, shortly after his death, stressing in particular the power and originality of this model. In terms of what might have been perhaps a Rowthorn–Goodwin collaboration could have synthesised a macro model which would have been scientifically far superior to the real business cycle, and subsequently dynamic stochastic general equilibrium (DSGE) models which came to dominate economics.

Of course, this hypothesised collaboration is mere speculation, but the fact is that Rowthorn did write purely by himself for much of the time. He is the sole author of a clear majority of his published articles. It is certainly not the case that he was secretive or found it difficult to relate to others. Far from it. As already noted, he is a very generous person, willing to share ideas, assist others in developing theirs, and always trying to see good points, even in arguments which he thought were incorrect. For these reasons, generations of King's undergraduates have regarded him as an outstanding teacher. One problem for Rowthorn has been that his ideas, his ways of analysing issues, are often strikingly original, at odds with the conventional thinking of the time. So the supply of people, as it were, with whom he could collaborate was limited.

Andrew Glyn was by far his closest collaborator. It is Glyn who stressed the role of profit share in the dynamics of capitalism, and it is to Glyn that Rowthorn refers several times in the 1995 paper. Glyn's premature death in 2007 was a great loss to Rowthorn. Glyn was also an original thinker, though perhaps rather more discursive in his work with not quite the same degree of mathematical rigour with which Rowthorn has always been capable of bringing to bear on a problem. But they saw eye to eye on many issues, not least on the great theme of Rowthorn's work, namely the dynamics of capitalism.

4 Grand Issues in Political Economy

Rowthorn has never been afraid of tackling grand issues in political economy. For a conference in Japan in 2014, for example, he set out scenarios into the mid-twenty-first century in a paper entitled 'The Emergence of China and India as Great Powers'. The paper is far-reaching in its scope. Rowthorn explores the long-term implications for international trade and investment, not least the relative importance of the rest of the EU to the UK, and goes on to consider the impact of China and India on the economies of sub-Saharan Africa. This is followed by a discussion of the changing balance of power in the world, including a discussion of the military balance.

The importance of institutional responses to the eventual outcome is emphasised, in particular those of the current imperial power, the USA. Intriguingly, Rowthorn sets his arguments in the context of Lenin's classic work *Imperialism, the Highest Stage of Capitalism*. Lenin identified imperialism as a special stage of capitalism, with five key features. Rowthorn makes it clear that the world has not evolved exactly as Lenin expected, but some of his predictions have come true. Large swathes of the world economy are now dominated by giant global firms that compete fiercely with each other, and the export of capital, as distinguished from the export of commodities, has acquired exceptional importance. This sets the scene for a detailed discussion of whether the leading individual capitalist states support 'their' firms in the global struggle, or whether, as is fashionably thought, giant firms are losing their national identity. Citing sources such as the *Harvard Business Review*, Rowthorn comes down rather firmly on the side of Lenin on this point. Overall, the paper is one which most academic economists would never have even dreamed of writing.

Rowthorn has a long-standing interest in regional questions within developed economies, in particular, but not exclusively, the UK. A somewhat unusual paper, for Rowthorn, is one which he wrote with Andrew Glyn in 2006 on the convergence and stability of regional employment in the USA. Rowthorn's applied analysis is usually based upon rather straightforward, classical econometrics, and it is his close understanding of the data and ability to form hypotheses which are the distinguishing and powerful features of his work. In the article with Glyn, the same very thorough appreciation of the data is present, and a substantial part is taken up with problems of measurement error in the data. The unusual aspect here is that Rowthorn uses modern developments in econometric time series analysis such as augmented Dickey–Fuller tests and split trends of the Perron type. Typically, the conclusions run contrary to conventional wisdom. Migration and other forces behind regional adjustment to shocks are now quite weak in the USA, and they cannot therefore explain the modern success of monetary union in that country.

The typical approach which Rowthorn has taken to regional economic issues is very much in the tradition of the Department of Applied Economics at Cambridge. A model is developed whose initial base is that of various identities in the national accounts. A thorough knowledge of national accounting principles can of itself generate powerful implications. Behavioural content is then added in the form of further aggregate equations, and the properties of the model are explored.

Rowthorn's 2010 paper in *Spatial Economic Analysis* is a good illustration of his work in this area. The article is concerned with the geography of structural change in Great Britain since 1971. It divides the country into two broad areas: the 'North' comprising Northern England, the West Midlands, Wales, and Scotland, and the 'South' comprising the rest of mainland Britain. The particular application is to the economy of the UK, but this two-sector model of economic development has much more general applicability. The paper documents the uneven regional impact of industrial decline and the rise of the new service economy. Rowthorn constructs what he calls a 'simple' mathematical model to link together regional competitiveness, employment, fiscal transfers, population, and migration. True, the maths is simple, but the economic insights are powerful. Rowthorn shows the crucial importance of the 'export base'. In the long run, the performance of a region depends upon the private sector, which in turn depends on the ability of this sector to produce tradable goods and services. The implications for policy makers are not particularly welcome. There are no quick fixes, because of the sheer scale of the imbalances which Rowthorn identifies, and the problem can only be partly mitigated by increased fiscal transfers between the North and the South. Drastic measures are needed. One set put forward by Rowthorn involves, somewhat paradoxically, boosting the successful South by massive investment in the transport infrastructure and ending zoning restrictions on housing and business development. This would permit migration on a sufficient scale from the North.

5 A Cambridge Approach to Marriage, Immigration, and Trust

During the past two decades or so, Rowthorn's interests have widened even further to address major social topics of the day, such as family structure and immigration. His 1999 paper in the *Cambridge Journal of Economics*—once again!—is a detailed theoretical analysis of marriage, supported by extensive citations of empirical evidence. The concept that economics can say useful things about social issues such as family structure was, of course, the innovation of the Chicago economist Gary Becker. Becker obtained due recognition for this with his subsequent award of the Nobel Prize. But his work is set in the context of individual utility maximisation and essentially takes as a background the institutional structure of marriage and the family as it existed in the Midwest of the USA in the 1950s. Essentially, through marriage, agents realise the gains from comparative advantage, a concept introduced by Ricardo. Women specialise in rearing children and doing the housework, men specialise by going out to work. Of course, this is something of a caricature of Becker's work, but, like most caricatures, it contains substantial elements of truth.

Rowthorn's approach, in keeping with the Cambridge tradition, eschews marginal analysis and the concept of utility maximisation. His 1999 paper examines the role of marriage as an institution for providing couples with the confidence to make long-term investments in their relationship. The basic theme is that marriage should be seen as an institution for creating trust between individuals in the sphere of family life and that legal and social policy should be fashioned so as to allow this function to be effectively performed. However, many of the legal and social reforms which have been implemented in modern times have undermined the ability of marriage to perform its basic role as a trust-creating institution.

We can usefully think of the decision to marry as an example of decision-making under uncertainty, where the word 'uncertainty' is used in the Knightian sense of not knowing the probability distribution of outcomes.

In many circumstances, the idea that agents lack the capacity to gather and process information in ways which enable them to optimise was stressed by Herbert Simon in his brilliant 1955 paper already mentioned above. Keynes's *General Theory* is of course replete with examples of his view that agents are often unable to foresee the consequences of their decisions, other than in the very short term. His concept of 'animal spirits' is essentially a psychologically based theory of how agents attempt to deal with fundamental uncertainty and are hence able to take decisions in the face of it, rather than being paralysed into inactivity.

Confronted by inherent uncertainty, Simon argued that agents use heuristics, and the concept of optimisation makes little or no sense. Rowthorn sets out a range of ways in which agents can be assisted in the process of decision-making in such circumstances. His paper is therefore not merely considerably more general than that of Becker in the specific context of marriage. It is an important contribution to the much wider and fundamental issue of decision-making under uncertainty, which mainstream economics does not really address at all.

Rowthorn was not content merely to write academic papers on the topics of family structure. He convened an active study group involving think-tankers at the forefront of the interface between research and policy on this matter. Rowthorn and I authored an article in the magazine *Prospect* arguing that marriage is the best family structure and public policy should recognise this fact (Ormerod and Rowthorn 2001). In doing so, we incurred the wrath of members of the metropolitan liberal elite, for whom it was a matter of faith rather than theory and evidence that all family structures were of equal merit.

The outrage has been even greater over Rowthorn's work on immigration, and in particular his two articles in *Prospect* in 2003 and 2006 (Rowthorn 2003, 2006), and his recent monograph for the respected think tank Civitas (Rowthorn 2014b). Again, however, Rowthorn's more popular, policy-oriented work is based upon sound scientific foundations, both theoretical and empirical. For example, his paper with one of the UK's leading demographers, David Coleman of Oxford, in *Population and Development Review* (Coleman and Rowthorn 2004), and his own subsequent papers in the *Oxford Review of Economic Policy* (Rowthorn 2008a) and *Spatial Economic Analysis* (Rowthorn 2008b). Rowthorn has also drawn on his more theoretical work on the emergence of trust and altruism, concepts directly related to the integration of minorities, in the *Economic Journal* and in *Evolution and Human Behavior*.

6 Conclusion

Standing back and surveying Rowthorn's work, the striking features are the breadth and depth of his contributions. Here is a scholar, completely familiar with both economic and econometric theory, addressing major social and economic issues in powerful and often original ways. The grand theme of his writings is the dynamics of capitalism, the central issue in political economy. As the material above makes clear, Rowthorn has also made important contributions on a wide range of topics.

Rowthorn has always imposed upon himself the essential scientific discipline of looking at empirical evidence when developing a theoretical argument. This is a characteristic which he has in common with great American macroeconomists such as Robert Barro and Milton Friedman. Whatever the devotees of the Cambridge tradition may think of their work, they, too, have combined theory with applied analysis and evidence. Overall, Rowthorn's work stands comparison with that of any living economist.

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