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David Worswick (1916–2001)

Rosalind Seneca

1 Introduction

My father, David Worswick,[1] was born on 18 August 1916 in Chiswick, London. His father, Thomas Worswick, was the son of a mining family in Ashton-in-Makerfield, Lancashire, who worked his way to Liverpool University, earning a BSc and an MSc. After distinguished war service, he became Director of Education at the London Regent Street Polytechnic where he devoted himself to the education and advancement of working-class students, a mission which David carried on. David's mother, Evelyn, née Green, studied History and English at Manchester University. Thomas and Evelyn had three sons and a daughter; David was the second son.

I would like to thank my sister, Eleanor Stanier, for materials and memories about David and also my brother, Richard Worswick, for a treasure trove of materials. I am also very grateful to Geoffrey Harcourt, my former supervisor at Cambridge in 1965–1966, who proposed my name for this project and gave me some enlightening comments and thoughts on the first draft. Finally, my husband, Joseph Seneca, organised and edited the entire manuscript for which I give him hearty thanks.

[1] His given names were George David Norman and his professional signature was G.D.N. Worswick.

R. Seneca (✉)
Cornelius, NC, USA

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As a boy, David attended the preparatory school, Colet Court (now St Paul's Juniors), and received a typical classical education of the time, including a large dose of Latin and Greek. He excelled in all his subjects, but was particularly gifted in mathematics. By the time he was twelve, he was promoted to the same class as his clever brother, Tom, who was two-and-a-half years older.

From Colet Court, David went on to attend St Paul's School, where also he excelled, until tragedy struck the family in the form of the sudden death of his father from meningitis in 1932. David was just fifteen. The awful blow was compounded by the embezzlement of his father's inheritance by a trusted friend, leaving the family in straightened circumstances. David's time at St Paul's was cut short. Nonetheless, with his mother's encouragement, he made his way via an Open Scholarship in Mathematics to New College, Oxford.[2] Subsequent scholarship funds made it possible for David to complete his degree in Mathematics with First Class Honours in 1937.

The early and sudden death of his father was one in a series of tragedies that David suffered in the following years. His younger brother, Dick, an RAF pilot in the Second World War, was lost over the North Sea in 1942. In 1948, David and his wife, Sylvia, lost their fourth child, Thomas Nigel, at birth. David had married Sylvia Walsh in 1940 and she became his lifelong support. They had three children, Eleanor Mary, Rosalind Sylvia and Richard David before Thomas.

Then in his early thirties, David began to go deaf and was diagnosed with otosclerosis, a disease of the middle ear. He had inherited the disease from his mother who was also deaf. This blow affected him throughout his life as he became deafer as he grew older. He was completely uncomplaining and open about it. In professional meetings, he would unclip the microphone of his hearing aid from his shirt pocket and place it on the table in the middle so he could hear comments from all sides. But it was a sore affliction, especially since he was a great lover of music and lost his capacity to hear it well in later life.

2 Starting Out

After completing his undergraduate degree, he faced the question of what to do next. As a gifted mathematician, David could have pursued his study in mathematics further. But he was deeply affected by the general

[2] See Artis (2003: 515).

unemployment and resulting dire poverty that afflicted the country during the Great Depression. Government policy of the time was ineffective. So, since further funding was available at Oxford, he enrolled for a Diploma in Economics and Political Science.

An influential tutor was Henry Phelps Brown with whom he later formed a lifelong friendship. Phelps Brown recognised the importance of assembling and analysing economic statistics before such information was routinely available and attempted to formulate such mathematical economic constructs as general equilibrium theory for non-mathematical students, albeit with varying success. He had, however, much in common with David's interests in both the economics of unemployment and mathematics. David earned his diploma with distinction.

With the outbreak of war, David applied for active military service but was rejected. He was then approached by Roy Harrod to take a position in the Oxford University Institute of Statistics (much later renamed the Oxford University Institute of Economics and Statistics) which had been founded to promote the use of statistics in social studies. This became an exciting place to work as a group of distinguished European economists, fleeing the Nazis, found their way to Oxford and were employed at the Institute. They were Fritz Burchardt, Ernst Schumacher, Thomas Balogh, Ludwig Lachmann, Kurt Mandelbaum and Michał Kalecki, whose theories about the causes of unemployment paralleled those of Keynes and were a great influence on David's thought.

To gain a sense of perspective about the importance of the "unemployment problem" to so many economists from the 1930s, it is worth looking back to 1929 when the stock market crashed on Wall Street. There followed an economic collapse in the US which immediately spread to the UK and around the world. The Great Depression lasted until the outbreak of the Second World War. In the UK, the unemployment rate reached 22% at its peak, although it rose as high as 75% in some parts of Northern England. There was dire poverty, malnutrition and illness among many groups.

It was in this world that David lived, first as a schoolboy and then as a student of economics. In this decade, Keynes and Kalecki independently developed similar theories that provided answers to the problem of unemployment for government policy. Their solution—to increase government spending—was almost immediately proved correct. Unemployment in England virtually disappeared by falling to 0.5% when the government ramped up to the fullest its expenditure on armaments. After the war, as government spending began to fall, the question arose of whether full employment could be sustained.

The concept of unemployment was itself complicated. Keynes, Kalecki and others focused on "involuntary unemployment" as the correct measure for the health of the economy and as the impetus for government policy. The involuntarily unemployed are those who are willing to work 'under existing conditions—wage rates, conditions of work and so on' (Harcourt 2012: 1) but cannot find a job. On its face, this would seem clear enough, but the definition immediately raises moral, statistical and policy questions. First, what groups does "willing to work" include?[3] If many unemployed have no work by choice then it can be argued that the social responsibility of society need not include them or be a trigger for government policy. This measure of unemployment would be relatively low.

Economic power is at issue here. In an extreme economic downturn, such as during the 1930s, all sections of society will gain from a government policy of full employment; workers will have jobs, business people (capitalists) will have higher profits, and there will be less social unrest. Also, if government policy increases public expenditure, as during the war, output will be increased. However, under less extreme national circumstances, as in the decades following the war, the issue will arise whether government expenditure will be maintained at previous levels when higher wages for workers may mean lower profits for capitalists. Also, in a country not at war, but with full employment, inflation is likely to become a problem. So there would be a public policy choice about how to balance inflation and unemployment. Tinbergen's insight was that you need one policy tool for each objective. Thus to maintain two economic goals, you need two policy tools. David's answer was that aggregate demand management could keep the economy at full employment and incomes policy could keep inflation under control (see Section 8 below).

David became a socialist during his time in Oxford. He joined the Labour Party during the war and helped set up the Oxford branch of the Fabian Society,[4] and for the rest of his life worked to understand and prevent involuntary unemployment. In the 1930s, Keynesian theories had mapped out the course for the government to maintain full employment during peacetime. Towards the end of the war, there was great optimism that economic depression was a thing of the past. In 1944, the BBC boldly broadcast—in a peak listening period on eight evenings over the space of a fortnight—a discussion on full employment. The programme was called "Jobs for All". David was in

[3] See Worswick (1976: 14).

[4] The Fabian Society is a British socialist organisation. It advocates democratic socialism through gradualist and reformist effort in democracies rather than by revolution. It was founded in 1884 and had an important influence on the Labour Party which grew from it.

the chair.[5] Each participant, from a wide variety of occupations, began by describing his or her background and personal experience, ranging from Donald Carson, 'a joiner by trade', Mary Lewis, 'a quarry man's wife', to the academic economist Maurice Dobb, a German, an American, manufacturers, industrialists, up to Sir William Beveridge himself. The discussion was wide-ranging. For example, Carson said, 'Well, there's just one thing I would like to ask—has the speaker been out of a job himself?' David replied, 'No, I have to admit I haven't'. 'I thought not!' was Carson's rejoinder. On occasion, the discussion became so heated that David had to call for order by striking a hammer on the table. The interest aroused among listeners was great and the broadcasts were published in a small book entitled "Jobs for All", with the royalties being given to the BBC's The Week's Good Cause.

At the Institute of Statistics, David published a series of papers about the war economy and he and his colleagues also considered the meaning of Keynesian theories for the post-war economy. The resulting book, *The Economics of Full Employment* (Burchardt et al. 1944), provided 'a statement of remarkable clarity and verve, which had no immediate real rivals for its combination of analytical insight and practical application' (Artis 2003: 516).

David's paper in this book entitled "Stability and Flexibility of Full Employment" introduced the idea of a wages policy, which later became more generally "incomes policy", to control the price level of a full employment economy, and showed him to be a true Keynesian macroeconomist. However, he was not beyond a foray into microeconomics when he published the solution to the consumer's optimisation problem with points rationing as well as income as constraints (see Worswick 1944).

3 Teaching and Academic Life: Introduction

In 1945, after the war had ended, David took a position, first as Lecturer and then immediately afterwards as Fellow in Economics at Magdalen College, Oxford. He became part of a distinguished group of fellows, which included Kenneth Tite in politics and Thomas Dewar ("Harry") Weldon in philosophy, who were to be joined by Frank Burchardt, who was, as noted, at the Institute of Statistics. They taught in the interdisciplinary field of Politics, Philosophy and Economics (PPE), introduced in 1920 because of the belief that, at the undergraduate level, none of these fields should be studied without reference to the others. Thus, for example, theories of reducing unemployment could

[5] See Sylvia Worswick's obituary of David (2001).

not be truly understood without reference to concepts of social justice. The ideas of the Utilitarians in philosophy influenced the development of consumer choice theory in economics. Also, as David was later to encounter, the politics behind the making of economic policy was influential in how eagerly the full employment goal was pursued by different members of the government. Students would study all three topics in their first year and could then reduce their topics to two for the last two years. The PPE degree at Oxford has become increasingly popular and the number of politicians, statesmen and journalists with PPE degrees from Oxford is remarkable.

In 1949, in the Oxford University Congregation, David put forward a proposal to postpone all University salary increases (with a few exceptions) for two years until 1951. The reason for this action of admitted self-denial was that it would be a 'noble and generous gesture' (Worswick quoted in *Oxford Mail* 1949: 2) to mirror the county's wage freeze in other sectors, that is, to support income's policy (see below, Section 8). The measure failed amid furious opposition, Sir Hugh Henderson stating that it 'was most unreasonable—almost a bizarre proposal, which might do serious damage to the interests of the University … We are being asked to do something which is plainly intolerable from the stand-point of the primary interest in our lives—that of the University' (Henderson quoted in ibid.). This was an example of David's tendency to assume that other people would, of course, be as self-denying as him. It was perhaps a naïve view, though he later more formally recognised that the clash between the public and the private interest was ubiquitous in making economic policy, especially the incomes policy. However, he was always disappointed when private interest dominated as much as it did under the government of Margaret Thatcher.

3.1 Teaching

The teaching method at Oxford consisted of a tutorial of usually between one to three students and his/her tutor and lectures at the University level which undergraduates from all colleges could attend. David's teaching schedule included both tutorials for Magdalen undergraduates as well as BPhil and DPhil students, and also lectures in economics at the University level. His room in Magdalen College was in the beautiful eighteenth century addition to the old college called the New Building. It looked out over a huge well-kept lawn and herbaceous border in the front and the deer park at the back. David's room was equally grand, on the upper floor in the front and middle of the building with the lawn view from two double windows with great shutters and window seats. This was where he held his tutorials.

David was, by the accounts of students and colleagues alike, a brilliant teacher. He gave one-hour tutorials from ten to one in the morning and four to seven in the late afternoon. He would eat lunch at home (across the High Street in number 62A) or in college depending on his schedule. (His salary included a number of free meals.) University lectures would also be part of his weekly schedule, as well as college meetings, PPE meetings and faculty meetings at times during term.

The reading list for economics was comprehensive, including mathematics and original treatises in economics such as *The Wealth of Nations* works by Joan Robinson, John Hicks and many others. A textbook on economics was recommended (Paul Samuelson's was the first). The level of teaching and final examination questions were very high. The student was required to have fully grasped the basic theory and to be able to discuss higher level questions in economics. David taught both microeconomics and macroeconomics and the mathematical formulations of each when they were required. Here's his student and later colleague at Magdalen, Kit McMahon, describing David's evolving thought about the uses of mathematics in economics:

> When (David) started to study economics his first reaction was how easy it was. I remember vividly his typically self-deflating description of a hectic, stimulating week in which he devoured all eight hundred pages of Alfred Marshall's "Principles" turning all the arguments into equations—and pretty simple equations at that. And then it dawned on him that that was not the point. He came quickly to share the skepticism of Marshall himself (also a mathematician who took up economics because of his social concerns) … He used to enjoy quoting the great man: "Every economic fact…stands in relation to cause and effect to many other facts…and since it *never* happens that all of them can be expressed in numbers, the application of exact mathematical methods to those which can is nearly always a waste of time, while in the large majority of cases it is positively misleading" (italics in original).

McMahon continued:

> The fact that David could clearly do the mathematics if he wanted to was a great strength in his arguments against those who increasingly tried to avoid the hard parts of economic problems by solving the easy parts with equations … He was from first to last a believer in political economy rather than economics and therefore that PPE was a genuine discipline rather than, as it was often taught in other colleges, three different subjects slung together (remarks made at David's memorial service, Magdalen College Chapel, Oxford, 20 October 2001).

In 1959, David published an article entitled “Mrs. Robinson on Simple Accumulation: A Comment with Algebra” (Worswick 1959). He says at the beginning of the article that ‘The best reason I can give for making this translation is that I was driven to do it because I found myself coming adrift more than once in following her argument’ (ibid.: 125). He congratulates Robinson ‘for striving to examine each successive step [of] her argument afresh’ in her book *The Accumulation of Capital*, but then says that there are ‘still traces of the habitual modes of thought which turn out to be unnecessary…and which might well, if left unexposed, be seriously misleading’ (ibid.).

Robert Solow used David’s mathematical model in his volume, *Capital Theory and the Rate of Return*, although there was no comment from others nor from Joan Robinson herself. But then no one likes to be taken to task in public, and David should perhaps have known this.

The following are some more testimonials about David’s style of teaching. Michael Artis writes:

> His style was to let the student find out for himself how a particular hypothesis “worked”—the joy of seeing the discovery in the student’s face was one of the things that David savored. And the method worked to bring confidence to the student to analyse and solve a problem. It also ensured a better grasp of what was learnt than rote learning could ever do (Artis 2003: 517).

Here’s Paul Dodyk, a Rhodes Scholar at Oxford:

> [David] was articulate, considerate, interesting and interested. He was never dictatorial, dismissive, sarcastic or coercive … With David as your tutor, you wanted to learn. His suggested readings for our sessions were the beginning, not the limit of what I wanted to know. He taught, and caused me to learn, a great deal of economics. He also taught me that blowing the place up and starting over was probably not a great idea (remarks made at David’s memorial service).

This comment reflects the fact that David was never a communist.

Here is another student, David Stout, writing in a letter to Sylvia after David’s death:

> I had the luck to have David as a dear friend and example throughout my scrambled career. No one has remotely influenced me so much. I always wanted him to be there and he was. When I walked in funk and despair out of one of the Webb Medley papers, David walked me round the deer park and talked me back into the Examination Schools. He talked me into trying for a Prize Fellowship and helped me to learn to teach by his own example and his trust … I not only loved being in David’s company, I admired him and wanted to be like him. His gaiety and his honesty, his acuity and his sympathy I found unfailing.

Here again is Kit McMahon: 'He was the most un-pompous, unstuffy of men, and the best of colleagues' (remark made at David's memorial service).

3.2 Other Academic Life

Besides his teaching at Magdalen, David also gave classes for the Workers' Educational Association (WEA) in Oxford. This organisation had had a long history in the socialist life of the country as universities took it upon themselves to provide education for working-class adults who did not have the means or the opportunity to attend a university themselves.

Early on in his time at Magdalen, David was involved in a number of committees and outside activities (see Artis 2003: 522). In 1946, he sat on a working party on the lace industry which required many visits to Nottingham. In 1951, he was a member of a committee on the purchase tax and another on tax paid stocks. He was also an expert witness for the Registrar of Restrictive Trade Practices. In all these activities, he deepened his knowledge of the inner workings of the British economy about which he wrote later wrote with such insight in his books and papers.

Artis writes:

> David had great clarity of mind and a lot of plain common sense as well as economic intuition … He could listen to others and whilst of strong opinions on some subjects himself he did not allow this to impair his dealings with others. These qualities recommended himself to numerous others who needed a job done, especially one with economic content (ibid.).

4 Research and Writing

In 1952, David joint-edited an important book of studies of economic development and policies in various fields in the UK for the years 1945–1950. His co-editor was Peter H. Ady, a Fellow of St Anne's College, Oxford. David wrote the introductory chapter summarising the British economy as it developed between 1945, the end of the war, and 1950. Experts, including Ady, were tapped to write on twenty-four different aspects of the economy during those years from "Direct Controls" to "Britain and the Sterling Area". It was a comprehensive volume. Ten years later, a companion volume compiled by the same editors was published, entitled *The British Economy in the Nineteen-Fifties* (Worswick and Ady 1962) which comprised thirteen broader categories from the "Terms of Trade" and "Fiscal Policy" to "Government and

Industry". Once again, David wrote an extensive introduction for the years 1950–1960. These two volumes were the first of their kind in Britain to describe the domestic economy, its development as a whole and in its parts and the prevailing government economic policy at the time. They were used as the first textbooks in applied economics by many students and they offered a comprehensive and detailed description of the different economic sectors as well as a discussion of policy in which David was particularly interested.

The UK post-war recovery following 1945 was a solid one. A Labour government under Clement Atlee had been elected and significantly maintained full employment through the maintenance of aggregate demand and physical controls over the markets where demand was greatest. Some increase in prices resulted. The balance of payments, so important in a small, open economy like the UK, was in surplus in 1950, the same year that Marshall Aid ended. There was still substantial pent-up demand dating from the war years, and a price and wage freeze in 1948 had succeeded in slowing the rate of rise of prices and money incomes.

Unfortunately, the Korean War in the early 1950s upset the applecart. It had a profound effect on the economy of the US. The short-lived 1948–1949 recession precipitated the devaluation of the British pound. There was a large increase in expenditure on armaments in the US which, in starts and stops, ultimately saved the economy from a further slump. Total expenditure on imports rose rapidly and a balance of payments deficit crisis resulted. Moreover, a rearmament programme in the UK led to some increase in taxes and proposed cuts in social services. A general election was called in 1951 and the Conservatives took over the reins of government.

In his introduction to the second volume on the British economy David chronicles the success of the post-war economic recovery through the 1950s, a period referred to as the Golden Age, mainly in reference to the continuation of full employment. However, his insight into government economic policy at the time is not so sanguine. At the end of his chapter, he notes three grounds of criticism. First, the goals of policy were viewed as achievable as separate entities rather than being interlinked. He quotes the government statement: 'First we must get rid of inflation and put the balance of payment right *before* we can increase production' (Worswick 1962: 72; italics in original). He notes that this notion implied that a fall in production could actually help in expanding the economy. This counts as a "nonsequence", to use his invented word much appreciated by his students who called such words "Worsicisms". As soon as attention was brought back to the full employment goal, prices were already rising.

The second criticism was that direct controls were made less clear which meant that private decision-makers such as banks were confused about what rules to follow. The third criticism of policy is that it relied far too much on an implied harmony of private and public economic interests. For example, David noted:

> Where does the loyalty of the trade union leader lie: to his members, who press him to get higher wages or to the Chancellor [of the Exchequer] who begs him to hold off? As for business, whose rationale is profit, the public good is a luxury which may be expensive and even ruinous.

He continued: 'Persuasion and reliance upon the acceptance of the "full duties of citizenship" may have some small part to play, but carried to any length they contradict the principles of private enterprise: in such a system it is illogical to expect them to succeed' (ibid.: 74).

The papers in the rest of the book address this conflict between the social conscience of economic actors and their private interest in great detail. But it was always David's concern for social justice and fairness that pitted him against the various Conservative governments when it came to formulating clear policies for the maintenance of full employment. This concern he maintained in his writing and teaching long before he left Oxford.

During his years at Magdalen, David was deeply involved in all aspects of university life. He was Chairman of the Board of the Faculty of Social Studies from 1948. He became an examiner for the PPE degree from 1949 to 1951 and was Senior Tutor for the Magdalen from 1955 and served as Vice President during 1963–1965. He dined regularly in college both at lunch and in the evenings and would return home in a convivial mood after the wine, delicious food and interesting conversation. It was no wonder that he loved his time at Magdalen.

In the 1950s, his son, Richard, became a chorister in the Magdalen College choir. He was not a boarder at Magdalen College School as the other choristers were. So every evening before practice and Evensong, he would walk out of the front door of 62A High Street where we lived and join the procession of choristers as they came down from Magdalen College School and over the bridge towards the College. David was a frequent member of the congregation in the chapel for Evensong even though he claimed he did not believe in any religion and was agnostic about the existence of God. But he was proud of Richard and he loved the wonderful hymns, anthems and prayers sung by the choir. His favourite anthem was "Splendente Te, Deus" by Mozart which was also sung at his memorial service.

There were two breaks in his teaching career. First, he was appointed in 1954 as a member of a team of three economists by the United Nations (UNCTAD) to advise the Turkish government on economic development. This entailed moving to Ankara, Turkey, in January with the whole family. Unfortunately, the Turkish government was not receptive to the suggestions of the team and after six months they ended their assignment. David spent the last three months of his appointment in Geneva.

The second break from Oxford occurred in the academic year 1962–1963, when David was invited to MIT as a Visiting Professor. Among his colleagues were Paul Samuelson and Robert Solow. One frequent topic of conversation was incomes policy. This was certainly on David's mind as the question of how to maintain full employment and at the same time prevent wage and price inflation in the long run became politically more difficult. Incomes policy involved pitting the private interest of wage earners and higher prices and profits for businesses against the public interest of controlling both types of increase.

After his time at MIT, he was offered a position as Professor of Economics at Manchester University, which he declined. Shortly thereafter, he was appointed as Director of the National Institute of Economic and Social Research (NIESR), a post for which he was eminently suited. Thus, in 1965, he began a new chapter of his life.

5 The National Institute

David's new position presented him with challenges in many different areas. The first was the need to maintain, support and keep the NIESR's economic forecasting model. This meant providing accurate quarterly and annual forecasts for the UK for a myriad of different variables, not simply GDP, employment, incomes, prices, wages and interest rates, but also the budget and the balance of payments, including the levels of exports and imports, as well as the exchange rates with many other currencies. This was ongoing, time-sensitive work.

The second was the supervision of a large number of studies about particular regions and industries in different parts of the country, the nature of structural unemployment and differing regional growth rates. The third challenge was to clarify the need for government policy, in particular to ask how to maintain full employment and wage and price stability in a changing world in which prices tended to keep rising. David's answer was some form of incomes policy. The relationship between those economists who stressed demand management as the main full employment policy tool and those who stressed monetary goals to contain inflation was continually strained. At issue were the economic facts themselves as they described how the economy worked, not only the different political interests at work in forming official policy.

The fourth challenge was to clarify the balance of payments issues associated with making an economic policy which would sustain full employment. The last issue, which he encountered immediately, was the issue of funding to support the work of the Institute itself. This involved constant communication with and presentations to different sources of funding: the government, in particular the Treasury, large American foundations like Ford and Rockefeller, and many smaller private business sources.

6 Economic Forecasting

Let us begin a more detailed discussion of these challenges with economic forecasting and the econometric model. Its importance as part of David's activities at NIESR can be measured by the fact that modelling and forecasting for the economy absorbed half the Institute's budget.

Before describing the history of NIESR's modelling and forecasting, it is appropriate to comment on David's fundamental approach to measurement, modelling and forecasting in economics as a field which he lays out in his paper, "Is Progress in Economic Science Possible?" (Worswick 1972). He first observes that economic variables are not like scientific entities which have clear and particular meanings like specific gravity. Economic variables such as tons of steel are ultimately proxies for value or utility in the minds of consumers. Workers are proxies for hours of human labour which may vary in different situations. Also, relationships between economic variables, such as the consumption function in which income determines consumption, result from human decision-making which varies over time and circumstances. Therefore, the attempt to describe the economy in terms of its inter-related variables through the use of statistical techniques such as econometrics, and to make projections about the future of path of the economy based on econometric modelling, is fraught with difficulty and ambiguity from the start.

As an example of the false accuracy of econometric relationships, David cites the case of the Phillips curve. Using data from 1861 to 1913, Phillips estimated a single equation relating the change in wage rates in the UK to the level of unemployment. This relationship was then used to incorporate later data and form a prediction that 2.5% unemployment could stop inflation. This was then linked to another idea that a higher level of unemployment would be favourable to economic growth. These two simplifications together were seized on by government policy makers to form the notion that increasing the unemployment rate could stop inflation and advance economic growth. This turned its head on the idea that the goal of policy should be to reduce unemployment because of the poverty and social distress it caused. David pointed out that the Phillips curve relationship continued to have traction with some economists and policy makers even during years when unemployment and inflation were rising simultaneously and, as David cogently put it, 'virtually every Phillips curve ever invented had jumped off the page' (ibid.: 82).

When David came to the National Institute, he encouraged its Executive Committee to come to a decision that not more than one half of its resources be devoted to the regular quarterly forecast of the British economy and the accompanying analysis. This was important in that it prevented the Institute from being drawn into the development of ever more complicated and costly econometric modelling at a time when such activity and its seemingly endless demands were coming into their own. It also allowed time and resources to be devoted to other lines of research previously outlined in Section 3.2.

When David took over the Directorship of NIESR, the forward estimates of the main components of GDP were not yet the result of an econometric model per se. Individual equations describing specific relationships were relied on, but these equations were not joined together in a simultaneous model (see Jones 1998: Chapter 4). During the 1960s, the building of a complete econometric model gradually took place. But the need to linearise the individual equations was difficult since many of the successful forecasting relationships were non-linear and did not perform as well when transformed into the linear context of the simultaneous model. However, in August 1969, a suitable simulation program was developed for a non-linear model with eleven equations which generated forecasts.

The job of improving forecasts was the focus of a large amount of work by the NIESR research team over a wide range of subjects as the scope and capacity of computers increased. David was involved as a member of the editorial board in overseeing the development of forecasting during his years as Director. Jones noted in 1998 that:

> Today, the [NIESR's forecasting] model can be described as having Keynesian features in the short term, but with classical long-run properties such that output is determined by the size of the labor force and the state of technology. Recent research has continued to refine the model along a number of different lines, each combining empirical validity with theoretical rigour (ibid.: 34).

In 1971, David wrote an extraordinarily clear and honest introduction to a book by M.J.C. Surrey called *The Analysis and Forecasting of the British Economy* which laid out the methods used at that time by the National Institute to produce quarterly forecasts. The book encompassed a discussion of all the variables and equations used in the Institute's econometric model. In his introduction, David discussed the various different contexts for viewing and understanding forecasting methods and outcomes. The idea, he says, is to be completely open about the methodology of forecasting so that the student or researcher can reproduce for herself the Institute's forecasts based on the information in the book. The quarterly estimates should be consistent in two ways: first, the rules of accounting should be maintained within each time period, and second, the relationships between different variables within and between periods should be consistent with the postulated structural equations. He notes that, in its essentials, the forecasting process has changed relatively little:

> The first step is to make estimates of the probable changes in certain "exogenous" variables, notably investment, exports, import prices and public expenditure, and to derive the remaining "endogenous" variables, such as consumption and the volume of imports, by using a model which is, in its essentials, a lagged multiplier combined with an "accelerator" for stock-building (Worswick 1971: 4).

He then points to the increasing importance of computers in obtaining forecasts rapidly from changing one or more exogenous variables (ibid.).

The next question is to ask whether the forecasts are any good. But now you have to ask what exactly is being tested? The reason for this second question is that the judgment of the (human) forecaster may be used to adjust forecasts in the light of special knowledge not reflected in the equations. This judgment is important in improving the accuracy of the forecast. But to test its accuracy the actual forecast must be used and the number of available forecasts may be too few for very exacting tests. At quarterly intervals, one would still hardly be satisfied with twelve such observations, still a small number, and certainly not just one. In particular, trends may be hard to detect.

Another difficulty arises when account is taken of the fact that forecasts are made on the basis of "unchanged policies". It may be that policies are changed within the forecast period in which case it would be perverse to compare the actual outcome directly with the original forecast. Of course, the econometric model could be re-estimated with the policy change included, or with other measurement changes in some of the variables over the forecast period. But now it is not clear at all what the meaning of the accuracy of the original forecast is. It is comparing apples with oranges.

Finally, David addresses the National Institute model itself as described in Surrey's book and notes that it is small. Many of the equations which comprise it are non-linear and all have to be constantly maintained in the light of data and policy changes. (He notes that a larger and more comprehensive linear econometric model was tried, but it performed badly.) He draws attention to the Phillips curve relationship which was used to predict unemployment but notes that the relationship had broken down, necessitating a change in the model.

The idea that the National Institute should undertake economic forecasting originated with economists within the Treasury, and there had been some movement of economists between the two institutions. But David stresses that the National Institute forecasts were 'wholly independent. This cannot be emphasized strongly enough' (ibid.: 13). This is typical of the way that David led the Institute. The formation of the forecasts was a team effort by the Institute forecasters, including David, but uninfluenced by outside voices.

Two newspaper articles by economic correspondents attest to the appropriateness of David's and the National Institute forecasting team's approach to forecasting. The first was by Peter Jay in *The Times* on 25 November 1971. He noted that the Institute's quarterly forecasts were central to the reputation of conventional national income (or "Keynesian") projections. These forecasts were widely published and reported, but often faced a lack of public understanding of what the forecasters were trying to do. Jay refers to David's 'fascinating, totally intelligible and elegant introduction to M.J.C. Surrey's book on forecasting' (Jay 1971: 25), discussed above. He describes David as 'a rare economist who throughout a long and distinguished academic career has combined a superior mathematical proficiency with an unquenchable skepticism about the ability of econometrics to displace political economy and seasoned judgement in the management of national economic affairs' (ibid.).

The second article, from *The Sunday Telegraph* on 8 September 1972, is by Patrick Hutber who also concurs with the National Institute's approach to forecasting and policy-making. He refers to a recent Institute forecast as a 'prediction of what may happen if things go on as they are' (ibid.: 21). The case discussed shows 'just how damaging the effects of the current inflation are liable to be. Left unchecked, accelerating inflation next year would mean that much of the higher consumer spending would be swallowed up in rising prices, so that demand would be lower, production rise less and unemployment stay painfully high' (ibid.). Hutber then traces out further outcomes of the forecast which he claims he has been saying himself 'until my voice gets hoarse and my typing fingers ache' (ibid.). Such approval from the press about National Institute forecasts was not infrequent.

7 Other National Institute Projects

The half of the Institute's time not devoted to forecasting was given to many other lines of activity.[6] For example, early on, David enlisted Arthur Brown from Leeds University to head a team of young researchers to work on regional issues. This resulted in *The Framework of Regional Economics in the United Kingdom* (Brown 1972).

The next project concerned the process of technological diffusion, a comparatively new research area. George Ray headed the project which also involved international comparisons involving cooperation with research institutes in five other countries. This project attracted David's involvement in particular. Besides a number of papers, the work resulted in a 1974 book entitled *The Diffusion of New Industrial Processes: An International Study* edited by Nasbeth and Ray. After that came *Industrialization and the Basis of Trade*, Batchelor et al. (1980) and *The Management of the British Economy 1945–60*, by Dow, subsequently extended and updated as *British Economic Policy, 1960–74: Demand Management*, edited by Blackaby. Meanwhile, Sig Prais and Peter Hart produced substantial work on industrial concentration, large firms and mergers. Eventually, this and Prais's continuing work won for the National Institute the accolade of designated research center from the Economic and Social Research Council. A number of conferences were also launched which were designed to explore leading issues in economic policy, including incomes policy (see below), demand management, deindustrialisation, and Britain's trade and exchange rate policy.

In its later stages, this research was shared with Chatham House and the Policy Studies Institute. Some fifteen books were published under this joint sponsorship before 1987 under the heading "Studies in Public Policy". David also visited the Brookings Institution (about which more below in Section 10 on funding at NIESR) and based the form of the NIESR's conferences and publications on the *Brookings Papers on Economic Activity*.

8 Incomes Policy

It is interesting that there is no discussion of incomes policy in the book (or the index) by David and Peter Ady, *The British Economy in the Nineteen–Fifties*, published in 1962. During the years following the Second World War and in the 1950s and 1960s, unemployment in the UK was low but rising

[6] This section draws on Artis (2003: 519–520).

slowly. It was 1.0% in June 1951 and rose to 2.2% in May 1969 (see Brittan 1976: 250). Each percentage point increase in unemployment represented 100,000 more people out of work. The individual social cost to an involuntarily unemployed person was high in terms of poverty and social distress, so the multiplication by 100,000 of such costs was considerable. Nevertheless, in terms of percentages, during the Great Depression in the 1930s when unemployment rates were between 10% and 20%, and in the decades subsequent to the 1960s (the number of unemployed persons in the UK rose to 3.5 million in 1986), a figure of 2.2% was considered to be relatively low.

During the post-war decades, Keynesian demand management were still in effect. That is, fiscal but also monetary policies designed to increase investment to plug the gap between aggregate demand and income were employed. However, policy makers were conscious of the fact that excessive aggregate demand might lead to rising wage costs as unions took advantage of their strong position in the labour market to push for higher money wages, in turn causing businesses to respond by increasing their prices. So the question became, how to maintain full employment without inflation? For a time, the Phillips curve seemed to provide an answer: if the level of unemployment were kept at 2.5%, or what was regarded as the natural rate of unemployment, then the rate of price rises would be stabilised. However, this empirical relationship soon collapsed as described in Section 4, and the conflict between maintaining full employment and keeping prices under control re-emerged.

In his 1991 book, *Unemployment: A Problem of Policy*, written after he had retired from the National Institute, David defined incomes policy as referring to

> measures intended to influence directly the level, or the rate of change, of money incomes, especially wages and salaries … Historically, wages policy and incomes policy were first discussed as a means to contain the cost inflation which accompanied the full employment which came to be taken for granted in the years following the war. Analytically it fitted comfortably into the Keynesian paradigm (ibid.: 118).

He then goes on to enumerate the various forms which incomes policy could take. For example,

> a highly centralized system in which all money wages were fixed by a single authority. At the other end of the spectrum the policy might consist of no more than jawboning, resorted to, at one time or another, by virtually every post-war Chancellor of the Exchequer, urging all concerned to exercise restraint in claims for higher wages or salaries. Incomes policies can be embodied in voluntary

> agreements between workers and employers, or between workers and employers' organisations and the government, or they can be imposed by law. They can be permanent features of the economic landscape or they can be introduced temporarily in response to some economic crisis (ibid.: 119).

The problem with the systematic use of incomes policy in the decades following the Second World War was that, while it fitted the Keynesian model of analysing the economy, it did not fit the monetarist model which assumed full employment. But it was the monetarist model that was gradually adopted by policy makers in Conservative governments especially that of Margaret Thatcher. As a result of monetarism, the government was no longer committed to keeping the unemployment rate low, but rather to preventing prices from rising too fast. However, during the 1980s, both the unemployment rate and inflation were increasing at the same time.

Since it is important for understanding incomes policy to know how economists thought the economy worked, it is necessary to look both at the Keynesian and monetarist models. In *Unemployment: A Problem of Policy*, David devoted some time to considering the monetarist model and the evidence which should support it. He started with a discussion of the quantity theory of money (QTM) using the well-known equation MV = PT, where M is the quantity of money in circulation, V is the velocity of circulation, P is the price level and T is the number of transactions. If Q stands for real national income, then MV = PQ, where Q is an index number for output and P is an index number of prices, and thus, PQ = Y is the nominal national income. If m = log M and we adopt the same notation for the other variables, we have the logarithmic form of the money equation as m + v = p + q = y. This equation can then be used to test empirically the strength of the relationships between the variables. There are two versions of the QTM, the first saying that the money stock and nominal income move together, and the second, older version asserting that the money stock and prices move together.

Brown (1983) tests the relationship between the money stock and money income for different countries and finds that there were fifteen and a half cases where money changes led income changes, there were fourteen and a half cases of simultaneity and five cases where income led money (the halves refer to a dead heat). When the relationship between the money stock and prices was measured there were eleven and a half cases where money led prices, five of simultaneity, and nine and a half where prices led money. David concluded that, 'Brown's data show that changes in the velocity of circulation from year to year are not so much less variable than the changes in money growth that velocity can reasonably be treated as a constant' (Worswick 1991: 145).

In 1982, Friedman and Schwartz published a massive study of *Monetary Trends in the United States and the United Kingdom*, covering the period 1867–1975 in the US and the UK. Time series were assembled for money stock, nominal national income, price deflators, interest rates, the sterling-dollar exchange rate and other variables. The data were "decycled" by an unusual device of triplets of neighboring cycle periods. *Monetary Trends* formed the agenda of a meeting of the Bank of England's Panel of Academic Consultants in October 1983. Besides Friedman and Schwartz, a number of journal reviews were discussed as well as two specially prepared papers by Hendry and Ericsson (1983) and by Brown (1983). The former concluded that a number of the assertions made by Friedman and Schwartz about their money demand equation 'were found to be without empirical support' (Hendry and Ericsson 1983: 82) and their failure to produce evidence pertinent to their main assertions 'leaves these devoid of credibility' (ibid.).

David commented that this was 'strong language' (Worswick 1991: 146). But he goes on to show that in his paper, Brown demonstrates that in the short run the growth of money income is not related to money. It is velocity, not money, which varies with money income growth within cycles and in the period between the world wars this relationship was particularly strong in the UK. Then Brown examined the question of how an expansion of money income is partitioned between changes in output and in price. He found that extra demand had gone mostly into output when there was spare capacity and into inflation when full employment was approached. David concludes by stating that: 'Finally, when Brown asks the question whether [Friedman and Schwartz] make their case that United Kingdom experience supports a simple quantity theory, with money controlling prices, and output controlled by other factors entirely', he says, "In a word, no"'(ibid.).

During the 1950s and 1960s,[7] a "Stop-Go" was in place in which the "Goes" were mainly encouraged by a relaxation of fiscal policy to raise output and employment and the "Stops" were most engineered by a tightening of monetary policy in the form of higher interest rates, restrictions on bank advances and a stiffening of controls on consumer credit. In 1964, the Labour government set up a National Board for Prices and Incomes (NBPI) whose primary aim was to control inflation. The Trades Union Congress (TUC) at first reluctantly agreed to participate, and the policy was initially voluntary—and ineffective. A six-month statutory freeze of wages and prices was imposed in the mid-1960s. However, when the Conservatives came to power in 1970, they abolished the NBPI. Prices began to rise especially after the floating of

[7] The following discussion is based on Worswick (1991: Chapter 13).

the pound in June 1972 which caused import prices to rise. The Conservatives undertook long negotiations with the TUC to set up a new incomes policy. These failed and the government imposed a wage freeze which remained in effect for the rest of the Conservative administration.

In 1973, there was a double energy crisis: war began in the Middle East and the Arab oil producers cut supplies which led to a quadrupling in the world price of oil. A Labour government was returned to power after a general election in the UK in February 1974 and proceeded to drop all wage controls, retaining only threshold agreements and a Price Commission.

This tit-for-tat tussle between Conservative and Labour governments over the type and severity of incomes policies in the face of continuing price rises lasted until the Thatcher government took office in 1979. By that time, unemployment was rising along with prices, and in 1986 the number of unemployed had reached 3.1 million. David's reaction to this figure was to point out that the accumulation of person-years of unemployment was substantially higher in 1986 than in the 1930s!

The failure of incomes policy to contain prices while preserving the level of employment was seen by David, and no doubt many others, as the failure of reasonable people in government, in the TUC and other policy makers to put the collective good ahead of personal advantage. David always expected people to do the right thing and not to act for themselves alone. So he was constantly disappointed when self-interest and disingenuousness (as in the monetarist mantra) at the top of government frustrated the collective good as he saw it. But then he was a socialist and put the interests of the ordinary people before those of the ruling classes. This, of course, was also a key difference between the Labour and Conservative parties.

9 The Balance of Payments

David addressed another constraint on the making of economic policy in Britain, namely the balance of payments. In a small open economy, trade is, of course, an important part of national economic activity. In his 1991 book, David employed his skills as a teacher to explain how trade affects the economy (Worswick 1991: 206–231). The classical model, first laid out explicitly by Ricardo, shows that barter between two countries benefits both. When that model is extended to take into account exports and imports trading at some exchange rate, the balance of trade (the value of exports minus imports) affects the internal economy, particularly output, employment, wages and the domestic price level. David laid out the case for a tariff as a means to increase employment in the protected industry. But he shows that it does not increase overall employment; it diverts employment into the protected industry and at the expense of a loss of real income to consumers.

In a small open economy, the difference between the value of exports and imports has been the focus of economic policy as another constraint on the attempt to maintain full employment and domestic price stability. David's 1981 article "The Money Supply and the Exchange Rate" rehearses the arguments of the policy debate between the Keynesians and the monetarists with respect to their different conclusions about the effects on the exchange rate and the balance of payments of changes in the money supply. For example, suppose there is a deficit in the balance of trade which policy makers believe will not correct itself soon enough. Then monetary policy could be undertaken to reduce the money supply and raise interest rates. This would cause an inflow of funds and a rise in the exchange rate causing a reduction in exports, a rise in imports and lower output and employment. On the other hand, if fiscal policy is tightened (higher taxes and/or lower government spending) in order to reduce demand for imports then domestic employment will fall as output is reduced. This is because the negative effects on output of a tighter fiscal policy (due to reduced consumption and investment) are likely to outweigh the upward effect on output due to lower imports.

In 1944, the Bretton Woods agreement fixed exchange rates to the US dollar. The IMF was set up at the same time to provide temporary funding for countries in deficit. The Marshall Plan also came into operation, providing significant amounts of aid from the US to the countries devastated by war. The explicit policy of maintaining full employment was affirmed by the UK government and led to a devaluation of sterling in November 1967. As noted, in 1972, sterling was allowed to float as the Bretton Woods system broke down. Devaluation had become another policy tool to help in achieving the goal of demand management when the balance of payments was also a significant policy objective along with full employment and only modest increases in prices.

10 The Problem of Funding

The problem of how to find financial support for an independent institute such as NIESR was present at its beginning and was still present when David became Director in 1965. The original grants from the Ford and Rockefeller foundations were ending and the UK Treasury, which had previously provided substantial funds, had decided that these should be directed away from forecasting in order to avoid the perception that the Institute's forecasts might be unduly influenced by the government. But, in 1965, David was invited to become a member of the Social Science Research Council (SSRC) under the Chairmanship of Michael Young. David accepted this position with the open recognition that the Institute would shortly be applying for SSRC funds. These funds were forthcoming in the form of programme and development grants and put the Institute's financing on a firmer footing for the next ten years. However, other applicants for SSRC funds objected to the priority of giving such generous funding to NIESR. A coup was attempted in the form of a proposal to establish a "British Brookings". This was an implied criticism of NIESR's policies which were viewed in Conservative circles as too Keynesian. At the same time, if adopted, the establishment of such a competitor would have probably completely bled the Institute's finances. Then it happened that one week David was asked to accept a cut of £200,000 for the Institute, and the next week he read an announcement that exactly the same amount of money was to be set aside for a "British Brookings". But as Artis states: 'David was always reasonable but never soft. He could defend his corner fiercely and did so on the occasion. In an atmosphere of considerable tension he had the decision reversed' (Artis 2003: 518–519).

As a by-product, NIESR joined forces with two other threatened institutes to arrange a series of conferences with eventual book publications to deal with various topics of the day, much like the practice of the Brookings Institution. However, shortly afterwards, Margaret Thatcher came to power and Treasury funding was run down. Other funding was eventually found and the Institute continued to produce quarterly forecasts and a substantial amount of research in a wide variety of topics, as has been detailed in Section 4.

11 Retirement

David retired from the Directorship of the National Institute in 1982 and moved back to Oxford with Sylvia. They bought a house at 25 Beechcroft Road in Summertown, North Oxford, where Sylvia created a third beautiful garden behind the house (the other two were at 62A High Street, Oxford, and at 7 Highmore Road, Blackheath, in London). From Summertown, David could cycle to Magdalen where he was appointed Fellow Emeritus and Sylvia could cycle to a school where she volunteered as a teacher of English as a second language. They were both very happy in their retirement and David's activities continued apace.

David turned down offers of teaching, noting that, 'I marveled at the confidence with which I had been prepared to teach a wide range of subjects a mere twenty years earlier' (Worswick quoted in Artis 2003: 521). One exciting opportunity came when he was made President of the Royal Economic Society. Among many other tasks, this involved organising a major international conference to recognise the centenary of the birth of John Maynard Keynes on 5 June 1883. The conference was held at King's College, Cambridge, in July 1983 and was attended by distinguished economists from all over the world. It came at a time when Keynes's macroeconomic ideas were under attack by Conservative policy makers with monetarist convictions in the UK and the US. So the large gathering of Keynesian economists created a particularly exhilarating atmosphere.

Many of the papers addressed the microfoundations of Keynes's theories, in particular by trying to explain the Walrasian and monetarist theories that predict that less than full employment is a disequilibrium circumstance which will disappear in the medium to long run. In his writing, David did not explicitly present or discuss the mathematical models supporting such arguments. The empirical evidence against them was perhaps enough for him. However, he recognised that the two main reasons for the economy getting stuck in unemployment are that money wages are sticky downwards and that the liquidity trap prevents interest rates from falling below a certain level. Lowering interest rates is supposed to encourage investment. Investment is in any case inelastic at low interest rates and certainly unaffected when the interest rate cannot fall any further. Therefore, increasing the money supply will be useless in this circumstance. Moreover, the Keynesian model does not provide an equilibrating mechanism for halting inflation once full employment has been achieved by demand management. This is why David always emphasised incomes policy as the only solution.

In that centenary year of 1983, I organised a "Keynes Day" at Drew University in Madison, New Jersey, where I was Associate Professor of Economics. The event took place in the Great Hall at Drew on 11 November. I had noticed that no celebration or even mention of Keynes was occurring in the US to mark the centenary of Keynes's birth. I invited my father to give the keynote lecture and a prominent post-Keynesian (American) economist, Paul Davidson from Rutgers University, to give the second lecture in the morning. After lunch, there was a panel discussion among the following economists: Lorie Tarshis, a former pupil of Keynes, who still possessed the class notes he had taken during Keynes's lectures in Cambridge, Robert Solow from MIT, Orley Ashenfelter from Princeton University and Leonard Silk, the economics editor of *The New York Times*.

David's talk addressed the 'practical results' of Keynes's theories. He first drew attention to Keynes's pre-Second World War approaches to economic issues. Keynes's book, *Economic Consequences of the Peace* (Keynes 1919 [1971]), warned that the harsh reparations imposed on the defeated Germany and its allies after the First World War would result in depression and political backlash in those countries. This, in fact, occurred and also led to the rise of fascism. Keynes's essay, "The Economics Consequences of Mr. Churchill" (Keynes 1925 [1972]), who was then Chancellor of the Exchequer in Britain, warned of the harm that a high exchange rate and adherence to the gold standard was doing to the UK economy.

David then turned to Keynes's post-war influence and, for the American audience he was addressing, emphasised the impact of the Bretton Woods Agreement of 1944 which set the terms of international exchange for a quarter of a century. Bretton Woods led to unprecedented growth and full employment in the advanced countries for twenty years after the war, the so-called Golden Age. At Bretton Woods, Keynes was the negotiator for Britain and Harry Dexter White represented the US. In the end, Keynes's ideas for an international central back and currency to be used by the bank were not adopted. Instead, White's more modest plan was put in place. The gold standard was abolished and currencies were to be tied to the dollar at fixed exchange rates; the dollar was then exchangeable for gold at $35 an ounce. The fixed rates could be readjusted if a country's trade became too unbalanced. The IMF and the World Bank were formed to monitor trade and promote borrowing and lending between countries. However, Bretton Woods collapsed at the beginning of the 1970s and exchange rates were allowed to float freely. As noted, prices began to rise and the goal of full employment was not met. Rather, inflation control became the number one policy objective.

In his talk during the afternoon panel discussion, Robert Solow pointed out that Keynes's macroeconomic model delineating the relationship between aggregate economic variables such as national income, consumption, investment, savings, employment and so on led to an outpouring of attempts to measure them. The new field of econometrics was then used to test the relationships between these variables in the context of Keynes's structure of the economy. Empirical measures of the consumption function, the causes of investment and other relationships then burgeoned. Even though Keynes's influence on full employment policies may have waned, his legacy in the field of macroeconomic measurement and forecasting lives on.

David's scholarly writing continued apace after his retirement. In 1991, partly working from an office in the National Institute, he completed his book, *Unemployment: A Problem of Policy*. As the title indicates, David always believed that the persistence of medium to high levels of unemployment as occurred after the Golden Age was not the result of a macroeconomic and monetary theory that required maintaining a higher rate of unemployment as the only way to dampen inflation. Adjusting demand to maintain employment, accompanied by incomes policy that was needed to prevent rising wages and prices, was rejected by some economists and policy makers alike in favour of tight monetary policy and adjusting the balance of payments. In a later article entitled "Has Mass Unemployment Come to Stay?" (Worswick 1994), David concludes that

> the obstacles in the way of achieving (a full employment economy) are, I think, as much moral and political as they are economic. On the domestic front, sectional interests of all kinds must learn to refrain from pushing to the limits of their strength for what may appear to be their sectional advantage. In the international arena cooperation is necessary…but very hard to achieve … I am not so pessimistic as to give an unconditional Yes in answer to my original question. But in all honesty I have to say that I shall be agreeably surprised if we see the end of mass unemployment in the United Kingdom before the end of this century (ibid.: 21).

In 2000, the unemployment rate was 5.4% and fell in 2001, the year of David's death, to 5.1%. These figures are too high in David's moral terms compared with the Golden Age levels of below 2%. In the first decade of the twenty-first century, the unemployment rate climbed to 8.1% in 2011 due to the Great Recession. It then began to fall, standing at 4.1% in 2018, with 1.36 million people unemployed.

12 Activities and Honours

Before going to the National Institute, David pre-invented the Norrington Tables, which listed by college the results obtained by Oxford students in their final examinations (see Artis 2003: 522). These were published in the Oxford Magazine and were always much referred to. He discontinued these in 1963 and subsequently a similar list was produced by Sir Arthur Norrington, after whom the list was named. Later, David was invited to join a committee to review admissions to the University in the light of the creation in 1961 of the Universities Central Council on Admissions system.

He was a founding member of the Social Science Council and was President of Section F of the British Association in 1972. He served on the government's Committee on Policy Optimization in 1978 and from 1982 to 1990 he was on City University's Council. In 1975, David received a DSc from City University and was very pleased to be elected a Fellow of the British Academy in 1979. From 1986/1987 and 1988/1989, he served as Chairman of its Section 9. In 1981, he was awarded a CBE.

13 David's Broader Life

David had a broad range of interests besides economics. He was an enthusiastic walker and adored climbing the mountains and hills of Scotland and the Lake District. Many family holidays were spent in these beautiful places. Another passion was music. David loved all kinds of classical music which was all we ever heard on the radio or on records.

Perhaps a good way to end this "Life" is to quote from a piece written by David's grandson Robert, son of Eleanor and Tom Stanier. Tom read it at David's memorial service since Robert was in India. Robert Stanier had been an undergraduate at Magdalen College reading Greats:

> It was a late summer morning four years ago, and my tutor at the time, being a young and trendy type, suggested that we have the tutorial outside. So we sat down to discuss my essay on the grass in Longwall Quad. After a few minutes, though, I caught sight of David, wheeling his bicycle in through the gate. He put it on the bike stands and methodically locked it up, took off his helmet and his cycle clips and began to walk steadily around the path towards the SCR Dining Room to claim his free lunch. When he looked up, he caught sight of me waving and came towards us. My tutor was not quite sure what to make of this man. I explained that he was my grandfather and as David came across, he had a smile on his face. It was the day after the General Election and Labour had finally returned to power. I asked if he was pleased, and David said that he was, but he assured my tutor that New Labour was not really him; in fact he was not just Old Labour, he was Dinosaur Labour! My tutor laughed. Then, after a short conversation, David took himself off, and as he walked away, I caught my tutor looking away at him. He seemed partly in awe at this distinguished college figure who had been walking the quads of Magdalen for over fifty years yet was still completely on the ball, and partly amused: after all, David did strike a somewhat comic figure with his bright yellow sash to ward off traffic, and his trousers tucked into his socks and it was improbably bizarre that someone of his years would still be cycling into college.

As for me, I looked at David largely with pride. In part, I took pride in the simple fact that he was the oldest Fellow in the College and that he was my grandfather. Yet, I was also proud because he was someone who had not given up his principles, be they political—he was still supporting Labour and had got some reward at last—or just with regard to cycling; he was still using the bicycle stands long after all the other fellows were behind the steering wheels of their cars.

David died on 18 May 2001. I was as proud of him at his death as I was when he came to visit me in nursery school when I was three and brought me my lunch. He was deeply honest and taught us always to tell the truth, a lesson which has stood me in good stead throughout my life. The reason he eschewed joining any government as a policy maker was precisely that he did not want to compromise with the truth in any way. He was a dedicated teacher who cared passionately about his students and the lessons he taught them. He was consistently a public servant in many areas throughout his life. His writing was clear and accessible and always relied on the evidence as it was presented. He made his passionately held case for full employment policy whenever he could. He was disappointed that the Golden Age was never repeated because of his deep compassion for the unemployed. He was a good man who was much loved.

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