PUBLIC FINANCE

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Public Finance

Studies in Economics by

Ronald Burgess

Public Finance

Ronald Burgess practised as an economist for more than fifty years. His aim was to offer practical advice to government based upon study, research, instruction and public speaking.

The editors have drawn upon a collection of manuscripts and recordings to prepare four volumes of his work on public finance supplemented by notes, commentary and references:

VOLUME 1

Economics Now 1979-1980. Ten seminars setting out an approach to macroeconomics with particular reference to government policy.

VOLUME 2

Ten Public Talks 1980-1983. A series of public lectures on topical issues such as monetarism, inflation, unemployment and taxation.

VOLUME 3

Spatial Economics (ten lectures) and **Normative Economics** (six lectures) 1983-1984. Original work on the relationship between the spatial aspects of macroeconomics and the role of the polity.

VOLUME 4

Further Work 1971-1994. A collection of essays and public talks on such topics as privatisation, local government finance, and the economic position of Greece within the European Union.

In 1993, with the support of the Economic Study Association, Ronald Burgess completed and published his book *Public Revenue Without Taxation*. The editors hope that these four volumes will provide a fuller picture of his work and assist the general reader with an interest in public finance.

Volume 1

Contents

Preface

This book contains a series of ten essays on the development of macroeconomic theory prepared by Ronald Burgess in 1980. They are based on a series of research seminars held in London earlier in the year with members of the Economic Study Association (ESA) and were subsequently used as teaching aids for lectures.

The essays begin with an introduction to macroeconomics and a discussion of the nature of the firm. This is followed by a review of some aspects of Keynes's theoretical work and a description of the nature of taxation and its effects on the national economy.

The significance of the level of taxation and its impact on both employment and inflation is then developed in terms of Keynesian supply and demand and monetary theory. This prepares the ground for a discussion of a potential economic upper limit of taxation.

The overall interaction between employment, inflation, taxation and output is then explored in some detail. Clear recommendations for government in terms of both monetary and fiscal discipline are then put forward for optimum output with price stability.

Improvements to this optimum condition would require radical changes to the accepted principles and methods of public finance and structural changes within an economy.

References are given at the end of each essay as they appear in the original text. Footnotes and diagrams have been added where necessary, together with an appendix which provides a summary of each essay and discussion of the main points. This is followed by a bibliography listing the main references and offering suggestions for further reading.

The editors are grateful to many colleagues and associates for helpful suggestions and corrections, and for proof-reading the final draft. Any remaining errors or oversights remain the responsibility of the editors.

Historical note

Ronald Burgess (1923–2002) was first introduced to the study of economics at the Army Formation College in Perugia, Italy, in late 1945. The course instructors were former academic staff from the Cambridge University Economics Department, from whom he received a thorough grounding in pre-war Keynesian methodology.

During the late 1940s and 1950s Burgess pursued various lines of enquiry at the School of Economic Science, which at that time placed great emphasis on the work of Henry George (1839–1897), and the classical tradition of David Ricardo (1772–1823). His aim was to discover whether these approaches could be applied to the issues of the day using the national accounts of the UK.

Ricardo had suggested that, as an agricultural economy expands under the pressure of increasing population, land of poorer quality is naturally brought into use. Other things being equal this would lead to lower average yields, rising costs, higher food prices, lower wages, and progressively higher rents on the better quality land.

Henry George, writing some 60 years later, had postulated that even on land of uniform quality an increase in population would lead to depression of wages and higher rents on the central sites.

With some notable exceptions no statistical data could be found in the recent history of the developed economies to support either of these propositions. The evidence seemed to suggest, in fact, that real wages as a share of total output tended to remain constant over long periods of time. In reaching these initial conclusions, Burgess was strongly influenced by the empirical work of Colin Clark, with whom he was in regular contact.

By 1960 it was clear that this line of enquiry, relying upon the theory of George and the Ricardian method of analysis, could not be reconciled with the available evidence and would not bear fruit. The economic issue of the day was the rate of inflation, rather than depressed wages, and a fresh approach was needed.

Burgess then set up the Economic Study Association (ESA) in 1965 and took up an offer of working with Colin Clark at Oxford.

Colin Clark (1905–1989) studied at Brasenose College, Oxford, where he graduated in Chemistry in 1928. He then worked briefly as a research assistant to William Beveridge at the London School of Economics before moving to the University of Liverpool.

In 1930 he took up an appointment as a research assistant to the National Economic Advisory Council. Shortly afterwards, through the intervention of Keynes, who was a member of the Council,[1] he obtained a teaching position as a lecturer in statistics at Cambridge University which he held from 1931 until 1938.

During this period he began to publish his pioneering work on the development of methods of national accounting and the use of statistical measures – such as the gross domestic product, GDP – for the analysis of national economies. Keynes assisted Clark with the publication in 1932 of his book, *The National Income 1924-31*, and quoted an extract from it in Chapter 8 of the *General Theory of Employment, Interest and Money*, which was published in 1936.

Colin Clark accepted the position of Government Statistician, Director of the Bureau of Industry, and Financial Advisor to the Treasury for Queensland in May 1938, and moved to Australia. He produced Queensland's first set of economic accounts in 1939 and published *The Conditions of Economic Progress* in 1940.

In the 1940s Ned Hanlon, the State Treasurer of Queensland, was concerned that the proposed level of post-war spending on the nationalisation of industry and welfare provisions would lead to an unsupportable level of taxation. After carrying out comparisons of pre-war economies, Colin Clark found that the maximum effective rate of taxation was in the region of 25% of net national income, and that higher levels of taxation were often associated with rising inflation without any real increase in government revenue.[2]

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1 Other members of the Council and its committees at this time included G. D. H. Cole, Hugh Dalton, Arthur Pigou, Ernest Bevin, and Lionel Robbins.

2 Published in *The Economic Journal*, Volume 55, Issue 220, December 1945.

In January 1952 Clark resigned from his Queensland positions and returned to the UK, where he had been invited to take up the position of Director of the Institute for Agricultural Economics at Oxford University (AERI). Before doing so, however, he spent the second half of 1952 at the University of Chicago, where he made contact with an early pioneer of spatial analysis, C. D. Harris, with whom he collaborated on the basic concepts of economic potential.

During this period at Oxford, Clark seems to have taken more interest in his work as an economist than in his teaching duties; his weekly Monday seminars included many notable visiting speakers, such as Roy Harrod, Sir John Hicks, and William Beveridge.

In 1966 Clark published a proposal for regional taxation[3] within the UK. Shortly afterwards in 1968 he gave a presidential address to the Agricultural Economics Society on the methods of analysis of the value of agricultural land, also published in book form, with comments on the work of Ricardo, von Thünen, and others.[4]

Throughout the 1960s successive UK governments attempted to control inflation through the use of prices and incomes policies.

In early 1968 the Economic Study Association produced a paper which argued against such policies, based upon empirical analysis.

The paper was produced by Ronald Burgess and a small group of ESA members, and finalised under the direction of Colin Clark. George Peters,[5] who was then Clark's research assistant, prepared much of the statistical data and Antony Fisher, who had set up the Institute of Economic Affairs in 1955,[6] gave practical support.

By this time Clark had become aware of further developments in the spatial aspect of economics. In 1969, using the resources of the Institute and with the help of two colleagues, he produced a

3 *Industrial Location and Economic Potential.* Lloyds Bank Review, 1966.

4 *The Value of Agricultural Land*. Journal of Agricultural Economics, 1969.

5 G. H. Peters had also assisted Colin Clark with the final 1957 version of *The Conditions of Economic Progress*, and in 1980 became the last Director of the Agricultural Economics Research Institute prior to its absorption into the University of Oxford's International Development Centre in 1986.

6 Colin Clark was an early member of the Institute of Economic Affairs.

report showing the changes in economic potential to be expected from the development of the E.E.C. and the likely effects if the UK were to join. The findings of the report did not meet with approval from the government of the day, which by then was in favour of membership.[7] The UK joined the E.E.C. on 1st January 1973.

A second ESA paper then appeared, dealing with the question of local government finance. It was published in 1970 in response to the report of a Royal Commission which proposed radical changes to the existing system. The ESA paper argued against the proposals of the Commission and offered alternative recommendations using the concept of economic potential.

Colin Clark returned to Australia in 1969. He took up a research appointment at Monash University, and later accepted a position at the University of Queensland. He continued to publish extensively and contributed further papers to the IEA in London.

The direct support which Colin Clark had been able to provide necessarily came to an end at this point, but arrangements were soon made with Professor Jack Wiseman at the University of York. This enabled Ronald Burgess to continue the ESA's programme of independent research, study, and publication.

The University of York was established in 1963. The Institute of Social and Economic Research (ISER) was formed the following year by Alan Peacock and Jack Wiseman, with Wiseman as its first Director, and a specialist public finance research group was set up.

Peacock and Wiseman had published their work on the growth of public expenditure in the UK in 1961.[8] Alan Peacock became President of the International Institute of Public Finance from 1966 until 1969,[9] and Jack Wiseman was President from 1975 to 1978. They both made significant contributions to its work.

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7 *Industrial Location and Economic Potential in Western Europe*, April 1969. This was during the first government of Harold Wilson, from 1964 to 1970.

8 *The Growth of Public Expenditure in the United Kingdom*, published by Princeton University Press, 1961, and Oxford University Press, London.

9 Alan Peacock was also Chief Economic Adviser to the Department of Trade and Industry of the United Kingdom, from 1973 until 1976.

With assistance from Jack Wiseman and financial support from the IEA's Wincott Foundation the ESA was able to publish a third paper in 1973 on the empirical relationship between the level of taxation and the rate of inflation, which in the UK had climbed to an annual rate of 9.1%.

There was then a fourth and final ESA paper, produced in early 1976, which brought together some significant conclusions.

It was now possible to put forward empirical data in support of Clark's concept of an economic upper limit to taxation, and also to show that there were strong statistical relationships between gross pay, taxes on employment, and the rate of unemployment.

There was also evidence to suggest that disposable net profits were largely determined by the level of taxation, and that there was a further, negative relationship between disposable net profits and the rate of unemployment. To establish these relationships required the careful use of the appropriate national accounting statistics, as previously explored by Colin Clark.

The main policy implication to be derived from these findings was that government fiscal policy was a major determinant of both inflation and unemployment, and also of net profit and investment.

ESA researches moved on to the need for a theoretical basis to support the statistical relationships that had been established. This effort was based upon a return to the aggregate supply and demand analysis of Keynes, modified to show the effects of high taxation.

There were serious economic challenges in the 1970s. The rate of inflation began to rise rapidly, reaching more than 20% in 1975, and the rate of unemployment increased to 9%. Between 1973 and 1975 there was a net reduction of more than 3% in total output.

Since 1974 Burgess had been submitting written papers to the Centre for Policy Studies[10] in response to requests from Sir Keith Joseph. It was widely anticipated that Joseph would soon become

10 The Centre for Policy Studies was set up in 1974 by Sir Keith Joseph, Alfred Sherman, and Margaret Thatcher, to develop free market economic policies. In 1976 Keith Joseph invited Colin Clark to return to the UK for a year and to work on policy proposals, some of which were later published by the IEA.

Chancellor of the Exchequer, and in early 1979, he had written to Burgess asking for proposals on taxation, output and employment.

The final paper in response to this request was delivered in May 1979, on the date of the general election which brought into office the first administration of Margaret Thatcher.

In the event Sir Keith Joseph did not become Chancellor of the Exchequer but was made Minister for Trade and Industry. He was, however, a keen member of the Cabinet Economic Committee and his interest apparently led to a series of exchanges between Ronald Burgess and Treasury officials over a period of several months.

The views of Burgess and the ESA did not prevail. Monetarist thinking had become established, and offered government a more attractive policy option. Whilst the Treasury advisers were able to accept the logic of the ESA argument, they were unable to make a favourable recommendation. This was partly because the Treasury model of the economy could not easily be adapted to deal with the more complex supply-side approach that Burgess had relied upon.

This turn of events gave rise to a further series of ESA seminars aimed at developing the theoretical basis for economic stability. It would then be possible, in time, to return to the original challenge of a more fundamental reform of the principles of public finance.

The essays contained in the present volume were the outcome of the research seminars, and were used as the basis of a series of public lectures which took place in London in late 1980.

Shortly afterwards in 1981 the IEA established its United States offshoot, the Atlas Foundation, in San Francisco. Ronald Burgess was one of the first recipients of funding from the Foundation in recognition of his efforts to develop Colin Clark's analysis of the economic upper limit of taxation. This funding enabled him to give a series of lectures to groups in Washington and in California.

Despite these connections, which gave him access to some of the leading economists of the day, Burgess was careful not to align himself with the particular views of the IEA, or of any other group, and continued to develop his own analytical approach.

Throughout the 1980s Ronald Burgess held regular seminars for ESA members, and gave many public lectures on economic policy in London and elsewhere. Transcripts of some of the earlier public talks can be found in volume two of this series. His original work on spatial and normative aspects of economics developed further with two series of seminars in 1983 and 1984, which are contained in volume three, and some further essays, public talks and lectures from different periods have been brought together in volume four.

In 1993 Burgess published an exposition of his ideas in a book with the title of *Public Revenue Without Taxation*. In his own time, however, he did not receive the full recognition he deserved; the editors hope that the availability of these four volumes will help to renew interest and encourage further work in a similar direction.

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9. Colin Clark (1905-89): Economist and Agricultural Economist. QEH Working Paper Number 69, by George Peters, Research Professor in Agricultural Economics, International Development Centre, Queen Elizabeth House, University of Oxford. April 2001.
10. Colin Clark: Queensland's Greatest Economist. Paper presented to the 44th Australian Conference of Economists, 7th - 10th July 2015, Brisbane, Australia (ACE 2015), by Alex Millmow, Senior Lecturer in Economics, Federation University, Australia.

Notes on the institutions

1. Agricultural Economics Research Institute, Oxford (AERI)

The Agricultural Economics Research Institute changed its name and structure several times. It was first established in 1913 as the Institute for Research into Agricultural Economics with the aid of annual grants from the Ministry of Agriculture, Fisheries and Food, and until 1945 it was a part of the School of Rural Economy within the University of Oxford.

In 1925 it was moved from the School of Rural Economy to Museum Cottage, Parks Road, and in 1928 it changed its name to the Agricultural Economics Research Institute, by which it became more widely known, and in 1930 it expanded by taking up space at 3 Museum Road.

In 1945 the university statutes governing the administration of the School of Rural Economy were changed. The name of the Institute was changed back to the Institute for Research into Agricultural Economics and it became an independent statutory body with a focus on "the study of the economics of the production, distribution and consumption of agricultural products and rural industrial conditions." The organisation of the Institute was placed in the hands of its Director, who was required to present an annual report on the activities of the Institute.

Colin Clark was Director of the Institute from 1952 until 1969. From 1958 through to 1968, amongst other activities, the Institute carried out research projects for the United States Department of Agriculture on the sale of agricultural products in the E.E.C.

After Colin Clark's departure the post of Director fell vacant for some months until it was filled by Kenneth Hunt in 1970. Shortly afterwards the Institute for Research into Agricultural Economics was merged with another university body, the Institute of Agrarian Affairs, to become the Institute of Agricultural Economics; this new combined organisation then moved into Dartington House, Little Clarendon Street in 1971.

In August 1986 the Institute of Agricultural Economics was absorbed into Queen Elizabeth House and ceased to be an independent body.

2. Queen Elizabeth House, Oxford (QEH)

Queen Elizabeth House was constituted by Royal Charter in 1954 to provide a residential centre for Commonwealth studies. From 1958 until 2005 it was located at 20-21 St Giles, adjacent to St John's College.

In the 1980s it was reorganised as a centre for broader international studies, and in 1986 it was merged with the Institute of Commonwealth Studies and with the Institute of Agricultural Economics to establish the International Development Centre as a university department.

The governing body of QEH was dissolved in 1994 after the transfer of its remaining assets to the University, and the surrender of its Royal Charter. Since 2005 the name of Queen Elizabeth House has been used by the Department of International Development to refer to its buildings at 3 Mansfield Road, formerly known as the School of Geography.

3. Institute for Social and Economic Research, York (ISER)

The University of York opened in October 1963 with an initial intake of 230 students and 28 academic and administrative staff.

The Institute for Social and Economic Research was set up in 1964 with Jack Wiseman as its founding Director. It reflected the aim of Alan Peacock and Jack Wiseman to bring together teaching and research.

The Institute established an international reputation in public sector economics and was awarded a research grant in Public Sector Studies by the Social Sciences Research Council for the period 1971 to 1981.

ISER also developed as a growing community of research fellows. It attracted many distinguished international visitors, and published a series of Economics Reprints based on the work of the Economics department.

The American economist James Buchanan (1919–2013) was a regular visitor; he was also a member of the advisory council of the Institute of Economic Affairs in London. Wiseman and Buchanan collaborated over a period of some thirty years, although they did not often publish jointly.

In January 1978 Alan Peacock moved from York to the independent University College at Buckingham as a Professor of Economics, with a view to becoming Principal in the autumn of 1980. He became the first Vice-Chancellor of Buckingham University from 1980 to 1984.

Jack Wiseman stepped down as the Director of ISER in 1982 when the university decided to set up a new body, the Institute for Research in Social Sciences (IRISS). This was intended to be a more broadly based institute bringing together all of the university's social science activities.

Over time IRISS absorbed ISER and other groups until it was itself dissolved by the university in 1997 and its research staff dispersed into other areas. Jack Wiseman retired from the university in 1988.

4. The Institute of Economic Affairs, London (IEA)

The Institute of Economic Affairs was established in 1955, partly in response to a conversation some years earlier between Antony Fisher and Professor F. A. Hayek on the need for a new type of organisation.

A body of trustees was formed in 1956 which then appointed Ralph Harris (later Lord Harris of High Cross) as the General Director. Arthur Seldon was appointed as Editorial Advisor in 1958 and became Editorial Director in 1959. He set in motion a series of academic papers in which economists could explore free market approaches to economics.

The IEA moved into new premises at Eaton Square in 1961, and in May 1969 it moved again to its current premises at 2 Lord North Street, Westminster, which it purchased in 1996.

Ralph Harris set up the Wincott Foundation in April 1969 in memory of Harold Wincott, a well known economist and financial journalist. The first Wincott Memorial Lecture was given by Professor Milton Friedman in September 1970 on *The Counter-Revolution in Monetary Theory*.

In 1977 Antony Fisher moved permanently to San Francisco where he set up the Atlas Economic Research Foundation. In 1981, in its first full year of operation, the Atlas Foundation gave financial support to the IEA and its Social Affairs Unit; to the Adam Smith Institute, where Antony Fisher was a trustee; and to the Economic Study Association.

According to Antony Fisher, Ronald Burgess was 'not accepted in the academic world'. The Atlas Foundation awarded Burgess a $3,000 travel grant with the explanation that this was 'the maximum supporting funds that Atlas can spare at the present time for these four organizations.'

Notable IEA authors during this period included F. A. Hayek (Nobel Prize winner 1974), Milton Friedman (Nobel Prize winner 1976), James Buchanan (Nobel Prize winner 1986), and many others.

Although it is now recognised for its influence on the Conservative government of the 1980s, the founders of the IEA were perhaps closer to the liberal tradition of the importance of political and economic freedom and equality before the law.

Acknowledgements

This introduction draws upon the notes and records of the ESA. The editors are also pleased to acknowledge the information and assistance made available by each of the organisations mentioned above.

The national accounts

National accounts provide a statistical description of economic activity within a country. They are similar to the trading accounts of a business, showing income, expenditure and a balance sheet.

The system of national accounts can be used to indicate the total output of an economy and to provide a breakdown of the different types of activity. It can also be used for year-to-year comparisons.

Economic output may be estimated in three different ways. The income calculation uses the addition of wages, salaries, profits and other types of income, whereas the expenditure approach estimates the total price paid for the products of the economy.

After allowing for imports and exports, the totals derived from these two methods should be the same; in practice an adjustment is necessary to bring the figures into agreement.

A third approach, introduced more recently, estimates the added value contributed by firms and other organisations.

The development of national accounting moved forward in the 1930s when Keynes called upon Colin Clark to provide statistical evidence to support the development of macroeconomic theory.

The next stage came about in response to the needs of Britain's wartime economy. As Colin Clark had moved to Australia in 1938, Keynes brought in two other Cambridge economists, James Meade and Richard Stone, to develop a more complete system of national accounts in support of his work at the Treasury.

During the six months from September 1940 through to March 1941 they produced a white paper to accompany the Finance Bill.[11] After further work by Richard Stone, this provided the basis of the system of UK national accounts now known as the *Blue Book*.

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11 *An analysis of the sources of war finance and an estimate of the national income and expenditure in 1938 and 1940*. Cmd. 6261, HMSO, London. The Chancellor of the Exchequer was then Sir Kingsley Wood. See also *Hansard*, The New Financial White Paper, HC Deb 7th April 1941, vol 370, cc1304-8.

James Meade (1907-1995) completed his first degree at Oxford. This was followed by a postgraduate year at Cambridge, where he became part of a small group working closely with Keynes.[12]

He returned to Oxford as a lecturer in economics, and then in 1937 he began working for the Economic Section of the League of Nations in Geneva. In June 1940 he made his way back to London and was employed in the Central Economic Information Service of the Cabinet Office. In addition to his work on national accounting, he prepared the 1944 government white paper on unemployment[13] which followed the publication of the Beveridge Report.[14]

In 1945 he produced a draft charter for the International Trade Organisation.[15] This was accepted as the foundation of the General Agreement on Tariffs and Trade (GATT), which later became the World Trade Organisation. He left the Cabinet Office in 1947 and took up a teaching role at the London School of Economics.

Richard Stone (1913-1991) had arrived at Cambridge in 1931 to study law but under the influence of Colin Clark, who had become a close friend, he changed to the study of economics. His tutors included Richard Kahn, Colin Clark, and Keynes.

He joined the government service in 1939 and was assigned to the Central Economic Information Service of the Cabinet Office to work with James Meade. Shortly afterwards he transferred into the Central Statistical Office, where he was responsible for the annual production of the national income statistics and the development of the underlying statistical methods.

He left government service in 1945 and, again through Keynes, was appointed as the first director of a new Department of Applied Economics at Cambridge with a focus on empirical research.

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12 The group consisting of Richard Kahn, James Meade, Joan Robinson, Austin Robinson and Piero Sraffa was known informally as the 'Cambridge Circus'.

13 *Employment policy*. Cmd. 6527, HMSO, London, May 1944.

14 *Social Insurance and Allied Services*. Cmd. 6404, HMSO, London, 1942.

15 *Proposals for consideration by an international conference on trade and employment*. Cmd. 6709, HMSO, London, December 1945. The draft charter was accepted at a United Nations conference in Havana in November 1948.

Before returning to Cambridge he travelled to Princeton where he produced a memorandum on methods of national accounting for the League of Nations. This was published in 1947 as an appendix to a report by the Statistical Commission of the United Nations.[16]

In July 1952 the UN Statistical Commission invited him to lead a group of experts, meeting in New York, to draft an international standard for national accounts. The work was soon completed and the *System of National Accounts* (SNA) was published in 1953.[17]

Richard Stone also supervised the first revision of the standard[18] between 1964 and 1968, and served as chairman of the group of experts until his retirement from Cambridge University in 1980.

In 1984 he received the Nobel Prize for his work in the field of national accounting. In his acceptance speech he summarised the development of the system he had helped to establish, set out some of its strengths and weaknesses, and paid tribute to the earlier work of Colin Clark which, he said, had been his main inspiration.

The Central Statistical Office (CSO) had been set up in January 1941 under its first Director, Harry Campion. After the war ended Campion was seconded for a year to establish the United Nations Statistical Office. He was the author of the *Statistics of Trade Act* of 1947, which introduced a legal framework for the collection of statistics from industry, and supervised the publication of the first issue of the *National Income and Expenditure Blue Book* in 1952.

The CSO remained part of the Cabinet Office until 1989 when it became a government department responsible to the Chancellor of the Exchequer. The Office for National Statistics was formed in April 1996 by the merger of the CSO and the Office of Population Censuses and Surveys; it continues to produce the *Blue Book*.

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16 *Measurement of National Income and the Construction of Social Accounts – Appendix: Definition and measurement of the national income and related totals*. Richard Stone. United Nations Statistical Commission, Geneva, 1947.

17 *A System of National Accounts and Supporting Tables*. Studies in Methods, Series F, No. 2 United Nations Statistical Office, New York, 1953.

18 *A System of National Accounts*. Studies in Methods, Series F, No. 2, Rev. 3, United Nations Statistical Office, New York, 1968.

Statistical data for the pre-war years was brought into the main framework of the national accounts by Charles Feinstein. The data series which he assembled was linked to official national income statistics to provide a continuous record from 1855 onwards, and is still recognised as a reliable source of information for the period.

Feinstein (1932-2004) was born in Johannesburg and studied economics and accounting at Witwatersrand University. He arrived at Cambridge in 1954, where he became a research officer in the Department of Applied Economics in 1958, and was appointed as a lecturer economic history in 1963. He was Professor of Economic and Social History at the University of York from 1978 until 1986.

In 1972 he published a detailed set of statistical data describing the national income and prices for the UK from 1855 to 1965. This followed the system of national accounts adopted by the CSO, and provided estimates based on the three approaches of expenditure, income and output as first set out by Colin Clark in the 1930s.

An introduction to the technical aspects of national accounting can be found in Richard Stone's Nobel Prize memorial lecture, in the standards issued by the UN Statistical Commission, and in the publications of the UK Office for National Statistics.

Ronald Burgess, in his work for the ESA, made extensive use of the *Blue Book* statistics and in some cases referred directly to the data tables produced by Feinstein. Some examples of his methods of calculation are shown in the appendix to this volume.

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ESA publications

The Economic Study Association was established in 1965 as an economics study and research group with the aim of formulating advice for government. It published four early papers:

1. *Enquiry into Prices and Incomes* (March 1968).
2. *Local Government Finance* (January 1970).
3. *Fanfare to Action – Income Distribution as a Cause of Inflation* (January 1973, with support from the Wincott Foundation).
4. *Social Justice or Unbridled Government* (May 1976).

Prior to the formation of the ESA, Ronald Burgess produced a paper called *An Inquiry into the Difficulties of the Railways*, based on a talk given at the Royal Society of Arts in July 1962 as one of a series of lectures for the School of Economic Science, London.

Two further papers were produced by Ronald Burgess with the support of ESA members and other organisations:

- *Full Employment and Public Spending* (August 1977). This was published by an employers' organisation called Aims for Freedom and Enterprise, which later became known as Aims of Industry.

- *The Chance to Change...* (September 1977). A forward-looking paper prepared with the financial and practical support of ESSRA, a predecessor of the Henry George Foundation of Great Britain.

After a further period of some fifteen years of study, teaching and research, members of the ESA also assisted Ronald Burgess with the production of the book *Public Revenue Without Taxation*, which was published in 1993 (ISBN: 0-85683-135-2).

ECONOMICS NOW

I

Introduction to Macroeconomics

16th September 1980

Macroeconomics is the name originated by Ragnar Frisch[19] in 1933 for the study of the relationships between broad economic aggregates, by means of which economic theory seeks to explain the working of the economy as a whole. The study of the parts is often called, by way of contrast, microeconomics; but there is no sharp dividing line between the two studies, since they tend to merge, and are not opposites but complementary to each other; and macroeconomics certainly requires sure micro-foundations.

Although macroeconomics is a relatively new name, the method of approach which the name identifies has a long tradition. The Physiocrats, for example, used what today would be called macro-economic methods in the eighteenth century, when they divided society into three classes to show the circulation of wealth.

Today, macroeconomic analysis also divides a contemporary economy into three parts, but to suit the purposes of modern supply and demand theory, the basis is different from that used by the Physiocrats. One part of an economy is called *households*, and is concerned with decisions relating to final demand; another part is called *firms* and this part is concerned with decisions relating to supply; the third part, *government*, primarily sets the conditions for the economy as a whole.

Economic theory was adapted to the conditions of the inter-war years of depression by laying emphasis on the advantages of action by governments to expand and sustain aggregate demand. Keynes argued, in addition, that "...there is a vitally important chapter of

19 The Norwegian economist Ragnar Frisch (1895–1973) was a co-recipient of the first Nobel Memorial Prize in Economic Sciences, awarded in 1969.

economic theory which remains to be written" (1, p.26) and called attention to the possibility of a stable equilibrium co-existing with a persistent deficiency in what he called the "effective demand" (Essay III). The Keynesian revolution thus gave to demand a new importance, which it had never previously enjoyed in economic theory, and this soon led to the development of so-called demand management techniques.

During the twenty-five years following the end of World War II most governments of the western developed economies combined the use of these techniques with a rapid expansion of government activity and influence in an attempt to sustain "effective demand" at a level consistent with their particular interpretation of the term "full employment".

From a widespread pre-Keynesian belief that supply created its own demand, government policy makers appeared to swing, with results equally disastrous for their economies, to an opposing post-Keynesian belief that demand created its own supply.

This latter belief is now in turn giving way to a belief, at least so far as the quantity of money is concerned, in the beneficial effects of government restricting supply.

However, the new monetarist policies that follow upon what Professor M. Friedman has described as the *Counter-Revolution in Monetary Theory*[20] are founded also on a theory which emphasises demand. For example, Professor Friedman in his "Restatement", published in 1956, wrote: "The quantity theory of money is in the first instance a theory of the *demand* for money. It is not a theory of output, or of money income, or of the price level" (2, p.4).

In this series of essays particular attention will now be given to supply, as a counterbalance to a half-century of emphasis on the development of the demand side of economic theory. This does not imply any denial of the importance of demand; a primary object of economic activity taken as a whole is to meet, and to sustain, the aggregate final demand of households. We work in order to live,

20 The title of Occasional Paper 33, published by the I.E.A. in 1970.

and we produce in order to consume; not the other way around.

From the standpoint of firms, economic theory views all economic activity as essentially a productive process by which the free gifts of nature are continuously modified so as to make them more fitting for final consumption. The individual firm may be considered as the *atom*[21] of this process; it is the unit of production that brings together all that is necessary for producing an output for sale to households, government, and other firms.

A firm may appear in any one of a multitude of varieties; a self-employed jobbing gardener is as much a firm as any productive entity making up part of a large nationalised corporation, or the most sophisticated and extensive multi-national company.

Whatever the variety of firm, its method of production, its organisation, or the kind of conglomerate to which it may belong, it is subject, in common with all firms, to the universal law that human effort is necessary to produce anything. This has been so at least since the time Adam was ejected from the Garden of Eden.

It follows that human effort, or labour, is a necessary factor of production which every firm must procure in the quantity and quality appropriate to its own particular output. But labour cannot, again by reason of universal law, produce an output out of nothing. The necessary labour must be applied to the necessary means of production.

Thus, in what a firm brings together in order to produce an output, we can distinguish between two necessary factors of production: labour, and the non-human means of production that are the gifts of nature and the intermediate products of other firms.

Having now distinguished between these two necessary factors, which in various combinations are sufficient to produce an output for sale, we can proceed to distinguish two corresponding factor incomes.

The receipts from the sale of output accrue directly to the firm, and from these receipts the firm must meet first the cost of its

21 The smallest unit of analysis that is possessed of all the necessary properties.

purchases from other firms (Essay II). After meeting these costs the balance of the receipts is divided between the return to the labour factor, which we will call wages, and the return to the other means of production, which we will call property income.

The term property income calls attention to an important characteristic of this class of return. Unlike wages, it does not accrue to a factor of production, but is appropriated as the income of those who enjoy property rights over the necessary non-human means of production.

An advantage of the two factor analysis outlined above is that it is useful in giving a place and meaning to the common description of a contemporary developed mixed economy.

All contemporary developed economies may be considered as lying somewhere along a line joining political extremes.

At one extreme, the political far left, there are the fully controlled *state socialist economies*. In this form of organisation all the property rights over the non-human means of production are enjoyed by the state, and all property income is appropriated by the state so that it is available to meet the expenses of the state.

The property income appropriated by the state may be expected to be sufficient to meet all ordinary state expenses, and there is no need, at least in theory, for the state to raise additional revenue except to meet some extraordinary expense. Public finance in the Kingdom of England a thousand years ago had many similarities with a contemporary state socialist economy, some of which still continue as constitutional fiction (3).

At the other extreme, the political far right, there are what we will call the *private enterprise economies*. In a private enterprise economy all property rights over non-human means of production are enjoyed by private persons, so that, in the first instance, both wages and property incomes are wholly private incomes. Thus, the government of a private enterprise economy has to rely on its legal power to impose and collect taxes in order to obtain the necessary revenue to finance even the most minimal of public expense.

Since tax revenue is always a deduction from private incomes, this presupposes that the taxpayer has an income from which the government can exact payment. In a private enterprise economy, therefore, one can distinguish three kinds of income: *tax revenue*, an income which government appropriates from private income for public purposes; *private income*, that is take-home pay, or post-tax wages; and disposable or post-tax *property income*.

Having defined the extremes, we can now proceed to consider the *mixed economies* which lie at some point along the line of socialist drift between these two extremes. The western developed mixed economies have evolved for the most part from a private enterprise economy or some close approximation to that concept.

As any economy develops, its government is forced for a variety of reasons to increase public spending, and in the case of a private enterprise economy this increase in spending necessitates an increase in taxation.

With increasing taxation, some firms begin to find themselves unable to meet an acceptable level of take-home pay and, at the same time, to remain competitive and profitable enterprises. In an attempt to mitigate industrial difficulties and social hardship, governments step up public spending, but as this entails more taxation in the longer run, it also intensifies the difficulties and hardship. Eventually the only reasonable and acceptable political solution appears to be some kind of nationalisation,[22] and with this step the government brings into being the mixed economy.

However, with the advent of the mixed economy there is an even greater need for more public spending; those firms which are first brought into public ownership are usually those making losses and often in urgent need of substantial funds for new investment.

Growing public expenditure creates the need for additional tax revenue. Each step forces the pace for the expansion of the public sector, and each speeds up the current flowing from one extreme to the other.

22 The ownership of firms by government, not for the supply of public goods.

In broad terms, the preceding paragraphs outline a common experience of all the developed economies of the western world.

The differences between the national economies are largely a matter of degree and intensity; they each proceed at their own pace and in their own way along the line of socialist drift, and the drift is generated by the steady multiplication of social and economic difficulties. Should the western nations struggle against this drift? Can their difficulties be resolved?[23]

The Keynesian revolution seemed to offer a solution to the problems of unemployment, scarcity and injustice, but in practice its application has cultivated the contagious disease of persistent inflation. A significant extension of state control as a remedy has so far proved unacceptable to free electorates.

At this point, monetarism claims to offer a cure for the disease of inflation without the need for moving closer to a fully controlled economy. But is this cure likely to prove more acceptable than the alternatives? Or more acceptable than the remedy offered by those who lay claim to the tradition of Ricardo, Marx and Keynes?[24]

Is the monetarists' cure[25] likely to prove more acceptable to the electorate than learning to live with inflation?

This series of essays seeks to elucidate the conditions necessary, not for 'Full Employment in a Free Society' (4), but for sustaining the maximum volume of output and employment that is consistent with a stable general price level in the contemporary developed economies of the western world: a limited but vital first objective if economic forces are not to motivate the destruction of western civilisation.

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23 See, for example, the discussion of this point in Joseph A. Schumpeter's classic work *Capitalism, Socialism and Democracy*, first published in 1942.

24 A reference to the members of the Cambridge Economic Policy Group of the 1970s, such as Wynne Godley, Nicholas Kaldor, Joan Robinson, and others.

25 Monetarism was at this time expected to lead to significantly higher levels of unemployment in the short term, in return for monetary stability and higher output in the longer term, as an alternative to continued high inflation.

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II

The Firm

23rd September 1980

A firm is the unit of production in a contemporary economy, an *atom* of the supply side; it procures all that is necessary to produce an output for sale to households, government, and other firms.

In any given period of time a firm will receive a certain money sum from the sale of its output; and possibly other monies from various other transactions, such as subsidies and similar payments from government, receipts from the realisation of assets, and so on.

The total money sum received by a firm in a given time period we will call its turnover, and designate as A.

During the same time period a firm may have made purchases from other firms, and paid out in respect of these purchases a total money sum which is included in the turnover of these other firms. This money sum we will designate $A1$.

Also, as a going concern, a firm may have brought forward from the preceding time period assets (such as inventory or work in progress) which, at market prices current at the beginning of the given time period, represented a net money sum, say $B1$.

Similarly a firm may carry forward into the following time period corresponding assets which, at market prices current at the end of the given time period, represent a net money sum, say $B2$.

The money sum $B2 - B1$, which we will designate as B, is thus a nominal measure of the change in value of a firm's assets during the given time period and expressed in monetary terms.

The added money sum, or income, that accrues directly to a firm as a result of its activities during a given time period is equal to its turnover, plus the change in the nominal value of its assets, less payments in respect of purchases; that is $A + B - A1$.

This income is a measure of the firm's net contribution to the income of the economy as a whole in terms of money, not in terms of goods and services, and in this particular context money may be considered as a general claim on goods and services.

We will call the nominal income represented by $A + B - A1$ a firm's *added-claim* (a-c); it is struck, by definition, after allowing for depreciation, but before allowing for stock appreciation.

A firm's added-claim after allowing for stock appreciation, we will then call its *net added-claim* (na-c). Finally, a firm's added-claim after allowing for stock appreciation, but before allowing for depreciation, we will call its *gross added-claim* (ga-c).

The net added-claim is the additional money sum generated by a firm's activities during a given time period, and available to it as a going concern to meet the take-home pay of its employees and all general government tax liabilities.

After making these payments, any balance of the net added-claim accrues to the firm as *profit*, the firm's disposable income, which is, subject to any prior charges, ultimately the property of those who enjoy property rights in the firm itself.

Profit is, as defined in the preceding paragraph, a result of the firm's activities during a given period of time; in a firm's accounts it is the residual item.

In general, firms may be expected to try to achieve the best possible result in any given set of circumstances, and to this extent may be considered as being profit maximisers. However, this is a 'carrot' view of a contemporary developed mixed economy, and it must not be allowed to obscure the existence of the 'stick', and ultimately of an 'axe'. Firms may or may not respond to the carrot, or they may respond in some degree; but what firms cannot avoid is the driving force of the stick, and the ultimate threat of the axe.

No firm can make persistent losses and continue for long as an independent productive enterprise, and no firm which is part of a company having a quoted shareholding can fail persistently to fulfil the profit expectations of financial markets.

As the twenty-first century approaches, a major part of the private sector in all the developed mixed economies is controlled by quoted companies, both national and multi-national. It is these quoted companies that, subject to the activities of government, provide the financial bench-mark for all firms down to the smallest self-employed unit.

Within quoted companies individual firms are subject, as are all private sector firms, to the discipline of the market for their own particular products; but quoted companies are subject, in addition, to the discipline imposed on them directly by both national and international stock and capital markets.

Although the individual firms that make up quoted companies may endeavour to maximise their profits, this is not sufficient, or even necessary, to ensure their continued existence as productive units. The individual firms of quoted companies are driven by the need to make a minimum level of profit, which is determined for each of them exogenously – that is to say, externally – by the stock and capital markets' view of their affairs.

This direct discipline spreads out to affect all firms indirectly to a greater or lesser extent. Even nationalised corporations are not wholly exempt from this discipline. Mostly, they are required to be profitable by statute, and attempts by governments to enforce such statutory requirements are usually related to an administrative estimate of the market's current view.

In any event, there is, as will be argued in a later essay, a definite limit to the amount of aggregate loss the public sector of an economy can incur persistently. This limit is related to general government tax revenue, plus the private sector aggregate profits after tax.

Minimum profit, considered as the amount necessary to fulfil the financial market's expectations, will vary widely from firm to firm depending on such factors as their total capital requirements, how they organize their internal affairs, the degree of risk, the rate of technical development, and so on.

For example, capital may be viewed as a fund which is embodied in a firm's assets and from this point of view capital is very mobile; contemporary national and international financial markets allow for funds to be switched speedily and at little cost to more profitable lines of production.

Thus we may conceive of a market rate of profit measured by the amount of profit as a percentage of the capital fund needed to generate that profit. Firms in a line of production needing large amounts of capital will, other things being equal, need to make a larger amount of profit, as a minimum, than other firms in lines of production needing less capital.

The rate of technical development in a firm's particular line of production will also be a factor determining what for that firm is a minimum profit. A relatively high rate of technical progress is likely to be associated not only with a high rate of depreciation but also with a need for a high rate of new investment if the firm is to remain efficient, competitive, and profitable.

The funds for this new investment may be forthcoming from a variety of sources, but whatever may be the source or combination of sources used, the greater the amount of funds needed for new investment, the larger will be the amount that constitutes a minimum profit.

Profits have to be realised before they can be used to fund new investment in going concerns. If a firm seeks to attract finance externally, by borrowings or by a new issue of shares, then the terms offered by the market will be related to the firm's record of profitability; the better the firm's record, the more advantageous the terms; the more advantageous the terms, the better the future prospects of the firm.

In economic theory firms are usually conceived to be profit maximising organisations. This concept of the firm, in so far as it implies motivation by the prospect of a fast buck, is a carryover from theories established in the nineteenth and earlier centuries. The maximisation of profit belongs, like the exploitation of the

working classes by swashbuckling privateer masters of industry, to the mythology of the industrial revolution and of the Victorian age.

Today, whilst firms may strive individually to achieve the best results possible, they are nevertheless all driven by forces external to themselves to make a minimum profit in order to continue as productive units.

This minimum profit is determined for the individual firm, either directly or indirectly, by the stock and capital market's view, and by the rate of technical progress in that firm's particular line of production.

For the purposes of economic analysis, the minimum profit is best measured as a margin of profit, that is, the minimum amount of profit expressed as a percentage of the net added-claim (na-c).

The concept of a minimum margin of profit is of importance to an understanding of Keynes's *General Theory of Employment*, and this aspect will be dealt with in Essay III.

Should the margin of profit of an individual firm persistently fail to fulfil the stock and capital market's expectations, or if it is insufficient to provide, or attract from outside, the funds necessary for new investment then, one way or another, market forces will cause that firm eventually to cease production. This is the ultimate sanction – the axe – which the forces operating through financial and product markets will, and do, impose on individual firms.

In a contemporary mixed economy then, firms are not so much motivated by a desire to maximise their profits, as driven by the need to make a minimum margin of profit sufficient to avoid the ultimate threat of closure.

Now, when considering the economy as a whole, we will call the aggregate gross added-claim the *Gross Domestic Added-Claim* (GDA-C).

The official estimates of the Gross Domestic Product at market prices, plus subsidies, will be taken as a measure of the GDA-C.

The GDA-C less capital consumption provides a measure which we will call the *Net Domestic Added-Claim* (NDA-C).

The GDA-C plus net property income from abroad we will call the *Gross National Added-Claim* (GNA-C) and, making the same addition, the NDA-C then becomes the *Net National Added-Claim* (NNA-C).

As these aggregates are all calculated on an *ex post* basis – after the event – they include the amount of profit actually realised and not the minimum margin of profit discussed above. The minimum margin of profit is however important in the determination of the aggregate supply price, and this will be discussed in Essay III.

Editors' note

In this analysis the receipts of the firm consist of income from sales plus subsidies received from government, and the firm makes payments to other firms for its purchases of intermediate goods.

The change in the value of assets from the beginning of a year to the end of that year automatically includes allowances for increases to stock and the depreciation of capital. In terms of the national accounts, this is a 'net' figure; depreciation is then added back in to reach a 'gross' figure.

For consistency with the system of national accounts it is necessary to deduct stock appreciation – i.e. any changes to the value of stock due to inflation – as this is not a money sum that can be spent by the firm.

These transactions take place at current market prices. The addition of net property income from abroad then converts each domestic aggregate into the equivalent national aggregate.

III

The General Theory of Employment

30th September 1980

The importance of Keynes's *General Theory of Employment* is that it treats the volume of output and employment as a dependent variable.

It does not require the assumption of an automatic tendency to full employment, as did classical theory, which is manifestly in conflict with twentieth century experience. Equally, it does not require the assumption of an automatic tendency towards some exogenously determined natural rate of unemployment, as does contemporary monetarism.

In the substance of the theory, as formulated by Keynes, the volume of output and employment is determined by the point of intersection between the aggregate supply function and the aggregate demand function.

The aggregate supply price, Z, of the output of a given amount of employment, N, is the expectation of the proceeds which will just make it worth the while of firms to give that employment. The aggregate supply function, $Z = \Phi(N)$, expresses the relationship between Z and N.

Aggregate demand, D, is the proceeds firms expect to receive from the output of a given amount of employment, N, and the aggregate demand function expresses the relationship between D and N, written $D = f(N)$.

When the value of D is greater than the value of Z the economy will tend to expand, and conversely, when the value of Z is greater than the value of D the economy will tend to contract. Thus, argues Keynes, an economy will always tend towards a point where $Z = D$ (1, pp.24-25), as shown in Figure 1 at the end of this essay.

The economics of Keynes is often interpreted, quite wrongly, as a theory of demand, and therefore concerned almost exclusively with the practice of demand management.

This wrong interpretation has characterised the development of post-war Keynesian economics. Much of the blame for this must rest with Keynes himself. During the inter-war years of depression Keynes found it necessary to stress the importance of demand in his "long struggle of escape from habitual modes of thought and expression" (1, p.viii); but to argue, as Keynes certainly did, that supply does not create its own demand, is not to argue, as most Keynesians appear to do, that demand creates its own supply.

In the *General Theory*, presumably for the sake of emphasis considered necessary at the time of writing, Keynes called the point of intersection between the aggregate supply function and the aggregate demand function the *effective demand* (1, p.25) but since this point of intersection is where Z = D, it can also be called with equal validity the *effective supply*.

In Chapter 20 of the same work, again presumably for emphasis necessary at the time of writing, Keynes argues the employment function in terms of the effective demand, although the case can be presented with equal validity in terms of the effective supply.

Keynes did emphasise, perhaps over-emphasise, demand; but what he did not do was to argue his case within the confines of demand theory. The *General Theory of Employment*, in particular, is a macro-theory argued from the point of view of the firm, and the individual firm is an atom of the supply side.

The concepts of aggregate demand and the aggregate supply price as used in the *General Theory* keep close to the Marshallian tradition and conform to the basic processes of bargaining.

Any particular bargain is the result of an agreement between two contracting parties and each party expects to gain from the resulting exchange. Bargaining is not a zero sum game.

In a monetary economy the party offering a sum of money in exchange for goods or services is called, by convention, the buyer.

The party offering goods or services in exchange for a money sum is called the seller. The money sum paid by the buyer to the seller is called the price.

As measured by the price, the point at which any particular bargain may be struck is confined within certain limits. The top limit above which the price cannot rise is determined by the buyer. He will have in mind a certain money sum in excess of which he is not prepared to reach an agreement with the seller. The bottom limit below which the price cannot fall is determined by the seller. He will have in mind a certain money sum below which he is not prepared to reach an agreement with the buyer.

Between these limits the point at which the bargain is actually struck will depend upon the bargaining skills and the bargaining powers of the contracting parties. During the process of bargaining a buyer will know his top limit, but he will not know – and cannot know – the seller's bottom limit. Correspondingly, a seller will know his own bottom limit but will not know – and cannot know – the buyer's top limit.

When a bargain involves future, or continuing, production the bottom limit of the seller will be related to his expected costs plus minimum profit; the money sum he expects will just make it worth his while to produce the goods or services being offered for sale.

Thus, as defined by Keynes, the aggregate supply price is an aggregate of the bottom limit of sellers, or entrepreneurs, or firms; that is, an aggregate based on information known only to those who have to decide whether it is worth their while to produce the output.

On the other side, Keynes's concept of aggregate demand is based on what firms expect buyers will spend. This is an estimate sellers must make for themselves; aggregate demand, therefore, is not an aggregate of the top limit of buyers since the necessary information is not available to sellers.

In elaborating the real substance of the *General Theory of Employment*, Keynes concentrated on improving the basis for

estimating aggregate demand, and one reason for this was his supply-side point of view; the point of view of the firm, the seller.

The development of post-war Keynesian economics not only fails to take into account Keynes's point of view but also fails to recognise that, for the purposes of theoretical exposition, Keynes implicitly assumed a near tax-less environment.

Chapter 6 of the *General Theory* begins with a "certain sum" which is the proceeds from sales of "finished output to consumers or other entrepreneurs", and this implies a market price concept which includes all indirect taxation.

However, in an earlier chapter (1, p.24) the expectation of proceeds which determines the aggregate supply price is defined as "factor cost plus profit." Factor cost excludes all indirect taxation, and it follows that either Keynes must be accused of inconsistency, or we must accept that he assumed an absence of indirect taxation. Further, Keynes considered factor cost to be "the amount paid out by the entrepreneur to other factors of production in return for their services, which from their point of view is their income." (1, p.53)

If it is assumed that an economy is composed of persons who are to some extent rational, then to define factor cost and factor income as the same amount implies an absence of all those direct taxes which combine to form a tax wedge coming between what is factor income, from the point of view of a factor of production, and what is the cost of that factor, from the point of view of a firm.

In the UK at the present time the exclusion of these direct taxes would exclude all revenue from the national insurance surcharge, and most of the revenue from income taxes and social security contributions.

Thus, the assumption implicit in Keynes's exposition of his theory excludes altogether from the aggregate supply price more than 80% of current UK tax revenue.

This would clearly be an unrealistic and disastrously misleading assumption if carried through – which Keynes himself did not – to the sphere of practical policy making.

Aggregate demand is the proceeds firms expect to receive from the output of a given amount of employment (1, p.25) and therefore, as is common practice amongst Keynesian economists, the aggregate must be taken as including all expected general government spending.

On the other hand, as argued in the preceding paragraph, the aggregate supply price excludes all taxation, except possibly a sum covering such direct taxes as are included within a firm's "gross profit in the ordinary sense of this term" (1, pp.53-54).

Such taxes account for little more than 10% of current UK tax revenue. It follows that whilst in the UK, or any similar economy, the theory will take fully into account on the demand side any changes in general government spending, on the supply side it will grossly underestimate the effect of any changes in general government tax revenue.

In the longer run changes in general government spending and changes in general government tax revenue are of necessity significantly and positively associated. That Keynesian models of the economy are weak on the supply side is widely recognised; what is not widely recognised is that this weakness results largely from the exclusion of most taxation effects on the aggregate supply price.

A further cause of weakness of Keynesian models on the supply side is the assumption that firms are essentially profit maximising organizations (Essay II). This assumption results in the failure to recognise that all items entering into the aggregate supply price are, from the point of view of firms, in the nature of costs. This weakness is directly attributable to Keynes for, in common with most economic theorists, he also assumed firms to be motivated by a desire to maximise profit, and defined the entrepreneur's profit as "the quantity he endeavours to maximise when deciding what amount of employment to offer." (1, pp.23-24).

Referring to the economy as a whole, Keynes then states, "thus the volume of employment is given by the point of intersection

between the aggregate demand function and the aggregate supply function; for it is at this point that the entrepreneurs' expectation of profits will be maximised" (1, p.25).

However, the aggregate supply price at the point of intersection is, as always and everywhere by definition, "the expectation of proceeds which will just make it worth the while of entrepreneurs to give that amount of employment" (1, p.24), and this can include only a profit which is just sufficient to make that level of activity worth while.

This must be so, since if at any level of activity profit is expected to be insufficient, then the expected proceeds will not be sufficient to make that level of activity worth while.

On the other hand, if at any level of activity the expected profit is more than sufficient, then the expected proceeds also will be more than sufficient to make that level of activity worth while.

Thus, the argument of Keynes leads to the conclusion that considered as a whole an economy tends towards an equilibrium at which the level of activity is consistent with the expectation of a minimum margin of profit determined by the market's view and by the rate of technological progress. Individually firms may strive to maximise their profit but in aggregate this is a red herring; it is the expectation, not of a maximum, but of a minimum margin of profit that enters into the aggregate supply price.

We are now in a position to make the adjustments to the details of Keynes's *General Theory of Employment* which are necessary for it to be useful as an analytical tool in the formulation of public economic policy.

We accept Keynes's statement that "the aggregate supply price of the output of a given amount of employment is the expectation of proceeds which will just make it worth the while of (firms) to give that employment" (1, p.24). These proceeds are, however, a money sum which firms expect will be just sufficient to cover the take-home pay of employees, general government tax liability, and the minimum margin of profit.

On the other side, the aggregate demand is the money sum that firms expect to receive from the output of a given amount of employment; it represents their estimate of private sector spending, general government spending, and exports less imports.

Providing the expected proceeds are measured on this basis we can accept Keynes's definition of the aggregate supply function, as $Z = \Phi(N)$; also, his definition of the aggregate demand function in the form $D = f(N)$; and his conclusion that the point of intersection between these two functions will determine the level of activity (1, p.25). To avoid the use of misleading terminology, however, the point at which the functions intersect will be called the equilibrium point, and the term "the effective demand" will not be used.

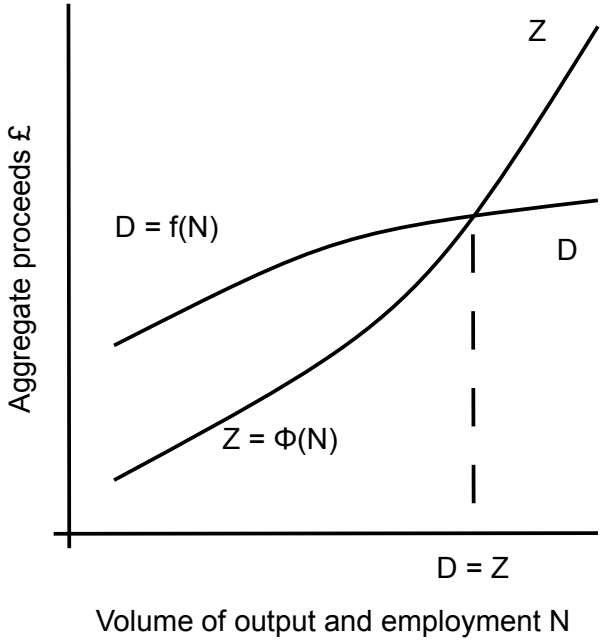

Figure 1: The aggregate supply and demand functions

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IV

Taxation

7th October 1980

"The State revenues which are always called taxes do not appear to me to be divided by any sharp line from those which are never called taxes", was the considered opinion of Edwin Cannan in 1899 (1). Administrative nomenclature during this century has continued to cultivate the confusion.

For the purposes of analysis, we will accept a definition given by Hugh Dalton: "a tax is a compulsory contribution imposed by a public authority, irrespective of the exact amount of service rendered to the tax payer in return, and not imposed as a penalty for any legal offence" (2). An advantage of this definition is that it does not depend upon what "are always called taxes" or "are never called taxes." It includes, for example, what are called officially national insurance contributions, along with all other direct taxes, indirect taxes, and taxes on capital.

It excludes the public revenue derived from public property, and the pricing policies of public enterprises. The public revenue accruing from the public ownership of the means of production is not different in kind from the private income derived from private property, private enterprises, or, usually a much closer comparison, private monopoly. Also excluded is the revenue which a public monetary authority may derive from the use of the printing press to manufacture legal tender paper money, although, in a general way, Professor Milton Friedman's description of this type of revenue as "taxation without representation" is apposite.

A further advantage of Dalton's definition is that the public revenue which it does include can be readily identified, and thus quantified, using the published national accounts.

Most writers on public finance accept the administrative classification of taxes; thus, it is commonly assumed that tax incidence accords with the intentions of the taxing authority.

What administrators classify as direct taxes are those taxes they intend should be paid by the persons on whom the tax is imposed. The intention is that income tax should be paid by those persons who receive the income on which the tax is to be assessed, and that employees pay the employees' social security contribution, whilst employers pay the employers' contribution. In accordance with the intention, all these taxes are classified as direct taxes.

On the other hand, taxes which come within the administrative classification of indirect taxation, or of taxes on expenditure, are intended to be passed on, in the form of higher prices, to the consumers of those products upon which the tax has been assessed. For example, an excise duty on alcohol is classified as a tax on expenditure, since it is intended that the tax should be paid by the consumers of alcohol.

To classify taxes in accordance with administrative intentions and to assume that the tax incidence always accords with these intentions has an obvious appeal to those charged with the job of administration. Further, the methods of tax collection and the forces generated by these methods often make it appear to the general taxpayer that the intentions of the taxing authorities are fulfilled in practice.

The difference between take-home pay and gross pay is a regularly repeated reminder of direct taxation and to the employee the tax wedge appears as a deduction taken from gross pay. From repeated experience consumers also know that price increases tend to follow closely upon increases in indirect taxation.

But neither the appearance nor intention is an infallible guide to what is happening, and in tax matters the expressed intentions of administrators are rarely fulfilled in practice. The expressed good intentions of governments and of politicians provide a particularly fine pavement along the road to fiscal chaos.

For the purpose of analysis we will distinguish first between the formal incidence and the effective incidence of a tax. In most cases the formal and the effective incidence of a tax do not coincide, but the two are linked through space and time by a process we will call tax shifting (3).

The formal incidence of a tax may be likened to the 'plop' of a stone as it breaks the surface of the pond into which it has been thrown. The 'plop' sets up a series of ripples which, spreading out in widening circles, disturb everything floating upon the surface of the pond. Eventually the ever widening circles of ripples reach the bank and cause some erosion.

Similarly, whenever an income tax is increased – such as Pay As You Earn (PAYE) for example – then take-home pay is reduced by the amount of this increase, and this amount is the measure of the formal incidence of the increase in PAYE.

Employees will react to a tax-induced cut in take-home pay and by their reaction motivate a tax shifting process which will upset both firms and markets. The tax shifting process will continue until the tax burden comes finally to rest, thus marking the effective incidence of the tax.

Unfortunately in the economic pond there is not one stone, one widening circle of ripples, but a multitude of stones being thrown into the pond continuously, so that the ripples cross and re-cross, combine, separate, re-combine, separate yet again, and reach the bank, only to re-bound and cause a greater disturbance.

As a matter of practice, it is near impossible to trace any particular tax from its formal incidence, through the complex process of tax shifting, to its effective incidence where the shifting process ends. With shifting, taxes merge, and the effect of one tax cannot be distinguished from the effects of many others.

Thus, it is not possible to ascertain the effective incidence of a particular tax in most cases since most taxes motivate a tax shifting process. Our classification of taxes must be related, therefore, to the formal incidence of a tax.

All taxes by their formal incidence create a tax liability and tax liability is, by definition (Essay III), a component of the aggregate supply price. Our classification of taxes will be determined by whether in its formal incidence a tax does or does not cause a quantitive change in the aggregate supply price. That is, whether by its formal incidence it does or does not cause a quantitive change in the value of Z for all values of N. Any tax which, by its formal incidence, does cause a change in the value of Z for all values of N we will classify as a supply-effect tax. Any tax which by its formal incidence does not cause a change in the value of Z for all values of N we will classify as a demand-effect tax.

For example, the employers' social security contribution is a supply-effect tax since any change in the tax liability created by its formal incidence will simultaneously cause a change of an equal amount and with the same sign in the value of Z.

On the other hand, the employees' social security contribution is a demand-effect tax, since any change in the tax liability created by its formal incidence will cause a change in take-home pay of an equal amount, but with the opposite sign, thus leaving the value of Z unchanged.

The imposition of supply-effect taxation causes an immediate change in the aggregate supply function since, by definition, the value of Z is increased for all values of N. This change in the aggregate supply function will then cause, assuming an unchanged aggregate demand function, a shift in the equilibrium point in a direction consistent with a contraction of output and employment, and, in most cases, a higher general price level.

In some cases, however, particularly when the money supply is highly inelastic, the imposition of supply-effect taxation may precipitate a slump, and the new equilibrium point will then be consistent with a substantial contraction of activity, and associated possibly with a lower general price level.

The assumption of an unchanged aggregate demand function accompanying the imposition of supply-effect taxation implies

either a simultaneous offsetting reduction in other government revenues or that the government's marginal propensity to spend out of tax revenue is zero.

This must be so, since in its formal incidence a supply-effect tax, like all taxes, creates a tax liability, but what is a tax liability from the point of view of the aggregate supply price is from the point of view of government a tax revenue.

If the government's propensity to spend out of new tax revenue is greater than zero then the imposition of supply-effect taxation will change the aggregate demand function, as the value of D will be increased for all values of N. Such a change in the aggregate demand function will influence the shift of the equilibrium point in a way tending to reduce the contraction of activity and increase the rise in the general price level.

When the government's marginal propensity to spend out of tax revenue is equal to unity then, given an elastic money supply, the imposition of supply-effect taxation will cause by its formal incidence a vertical rise in the equilibrium point. In these circumstances the general price level will rise in proportion to the full amount of the tax and, apart from the possibility of some temporary disturbance, the volume of output and employment will be unaffected. An addition to existing supply-effect taxation will operate in the same way in similar circumstances as its first imposition, and likewise, a reduction will motivate the opposite tendencies.

The formal incidence of the imposition, or change in amount, of demand-effect taxation cannot be the proximate cause of a shift in the equilibrium point. A demand-effect tax by its formal incidence does not, by definition, cause any change in the aggregate supply function and although it may be the primal cause of a change in the aggregate demand function there is an additional link in the chain of causation. This additional link is provided by the government's marginal propensity to spend out of tax revenue and the rest of the economy's marginal propensity to spend out of disposable income;

the relationship between these two propensities determines the direction of any change in the aggregate demand function.

When the government's marginal propensity to spend out of tax revenue is greater than the rest of the economy's propensity to spend out of disposable income then an increase in the amount of demand-effect taxation will tend in its formal incidence to be expansionary. This must be so, as the value of D will be increased for all values of N.

The trade-off between output and price changes arising from this expansionary impulse will depend largely on the elasticity of aggregate supply and, to a lesser extent, on the elasticity of the money supply. In the same conditions, a reduction in the amount of demand-effect taxation will tend to be contractionary.

When the government's marginal propensity to spend out of tax revenue is less than the rest of the economy's propensity to spend out of disposable income then a change in the amount of demand-effect taxation will have, in its formal incidence, an opposite effect to that outlined above.

Thus the conventional wisdom of demand management that, for example, a cut in income tax is always expansionary, is not valid in respect of the formal incidence of the tax cut. Whether such a tax cut provides an expansionary or contractionary impulse in the very short run will depend upon the relative propensities to spend as between government and the rest of the economy.

When demand-effect taxation is used as a policy instrument, it is important to bear in mind that, unlike supply-effect taxation, demand-effect taxes do not automatically cause an immediate shift in the equilibrium point; the relative propensities to spend are an additional link in the chain of causation, and the direction of any shift is determined in the very short run by this additional link.

Let us now proceed to consider the process of tax shifting. We will assume an economy in a state of stable equilibrium at some level of activity less than 'full employment'. The supply of money is determined only by the demand for money; and throughout the

economy the propensity to spend out of current income is assumed to be equal to unity, irrespective of the source of income.

At this juncture, let us assume that the government imposes an increase in the amount of demand-effect taxation included within the *employment tax wedge*. (In terms of current taxes in the UK, this could be an increase in PAYE, or of employees' social security contributions, as discussed further in Essay V.)

In its formal incidence this additional taxation will not cause any change in the equilibrium point since neither the aggregate supply function nor, by assumption, the aggregate demand function will be changed. In the very short run apart from the possibility of some temporary disequilibrium, all that is to be expected from this change in fiscal policy is some adjustments to relative price levels arising from the shift from private spending to government spending.

It is to be expected that employees will react to a tax-imposed cut in their take-home pay by demanding additional gross pay, and in some measure employers will accede to these demands.

Adam Smith argued that a 20% tax on wages would result in a 25% rise in gross wages; and he concluded that all taxes imposed on the wages of employees are shifted by the employees onto their immediate employers (4). In this respect Adam Smith's conclusion is consistent with the results of recent statistical investigations (5, 6, 7, 8).

All this leads to the conclusion that both theory and experience predict that an increase in the amount of demand-effect taxation that is included within the employment tax wedge will motivate a tax shifting process; the first step in this process will be a shift of tax incidence from employees onto their immediate employers.

As take-home pay recovers the amount it had lost to taxation, the aggregate supply price will be increased by the full amount of the tax recovered by employees, plus any additional tax liability resulting from fiscal drag.

On the other side, by assumption, aggregate demand will be

increased simultaneously by the same amount as the aggregate supply price; that is, by the amount of the additional take-home pay plus tax liability. It follows that, since the value of D and the value of Z are increasing simultaneously by equal amounts for all values of N, then the equilibrium point must be rising vertically, in a direction consistent with a rising general price level, and an unchanging volume of output and employment.

Thus the tax shifting process will simulate a condition similar to that described by Keynes as "true inflation" (9, p.303). However, when as a result of the tax shifting process a rising general price level is associated with little or no change in the level of economic activity the condition is better described as tax inflation; although, as will be argued, tax inflation is not necessarily always associated with the condition Keynes described as "full employment".

A rising general price level reduces the purchasing power of disposable money incomes as a whole, and in this way the tax shifting process works to effect a diffusion of tax incidence. But, in the absence of complete money illusion, and assuming some rationality, the erosion of real disposable incomes by rising prices will lead to further pay demands (10, p.6), as well as retaliation by the receivers of other forms of money income. With this secondary retaliation an element of self-generation is introduced into the tax shifting process.

However, it is generally accepted by economic theorists that the receivers of certain classes of money income are unable to retaliate against the incidence of taxation. These would include income that is permanently fixed in monetary terms, monopoly incomes, and incomes from rental factors.

Adam Smith argued, for example, that the owners of ground rents cannot shift the incidence of any tax which may be imposed, or may happen to fall, upon their rental income.

It is to be expected, therefore, that although the diffusion of tax incidence through rising prices causes the tax shifting process to be self-generating to some extent, it leads also to a running down

of the process itself; the incidence of an increasing proportion of taxation becomes such as cannot be shifted, whilst the balance becomes so thinly spread as to make the motivation of further shifting less likely.

The tax shifting process ceases when the formal incidence of the taxation which originally motivated the shifting is transposed into an effective incidence which cannot, or does not, motivate any further shifting.

Continuing with our assumptions, a supply-effect tax will, as already argued, by its formal incidence cause the general price level to rise by the full amount of the tax with little or no change in the level of economic activity. This higher general price level will erode real disposable incomes and must be expected to lead to retaliation by most income receivers.

The active retaliation against the erosion of real incomes by higher prices caused by the formal incidence of supply-effect taxation will motivate a self-generating tax shifting process indistinguishable from that motivated by demand-effect taxation. Once motivated, a supply-effect tax shifting process will continue, as with demand-effect taxes, until the formal incidence which originally motivated the shifting is transposed into an effective incidence which cannot, or does not, motivate further shifting.

When used as policy instruments, however, an important difference between supply and demand-effect taxes is in their respective time lags. Since the formal incidence of a supply-effect tax tends to affect prices immediately, a change in supply-effect taxation will motivate a tax shifting process much more quickly than a comparable change in demand-effect taxation.

For this reason, demand management techniques rely mostly on supply-effect taxes as regulators. Nonetheless, our tax analysis implies that the standard demand management argument that an increase in supply-effect taxation, such as VAT, will cause only a once and for all rise in the general price level is valid only on the assumption of persistent money illusion, or irrationality, or in cases

where the increase in the amount of the tax is so small as to not activate retaliation.

As described above the tax shifting process is the mechanism by which an economy absorbs the imposition, or increase, of taxation through a movement from one stable general price level to another higher stable general price level. An elastic money supply is a necessary condition for this absorption to be carried through with the minimum of interference to the volume of output and employment.

For this reason the condition in which a tax shifting process is continuing is best described as one of tax inflation. The proximate cause of tax inflation is an elastic money supply; the primal cause is the imposition of taxation, or an increase in taxation. When the money supply is insufficiently elastic then the tax shifting process will cause a trade-off between a rising general price level and a contraction of economic activity; the measure of the trade-off will be determined by the degree of elasticity of the money supply. An inelastic money supply will minimise the rise in the general price level and maximise the contraction of economic activity.

When the amount of taxation is such as cannot be absorbed by an economy through the tax shifting process then, given an elastic money supply, tax inflation will continue indefinitely, for there will exist no general price level that is consistent with a stable equilibrium point. This condition can be aptly described as one of persistent tax inflation.

On the other hand, providing that the money supply is kept sufficiently inelastic to precipitate and then continue an economic depression of such an intensity as to ensure that the associated unemployment, or fear of unemployment, will prevent any active retaliation against the incidence of taxation then, even though the amount of taxation is such as cannot be absorbed by an economy through the tax shifting process, there will exist the possibility of attaining a stable equilibrium. This condition we will describe as one of suppressed tax inflation.

From the above argument it follows, for any economy in given conditions there is an economic upper limit to taxation determined by the total amount of tax revenue which, given a sufficiently elastic money supply, the economy can transpose into an effective incidence through the tax shifting process without any permanent contraction in the level of economic activity.

Providing tax revenue does not exceed the economic upper limit to taxation then tax inflation is a finite condition describing the period during which the tax shifting process causes an economy to move from one stable general price level to another higher stable general price level. When tax revenue exceeds the economic upper limit to taxation then, outside of a fully controlled economy, monetary policy will be decisive in determining the outcome as between a condition of suppressed tax inflation or some degree of persistent tax inflation.

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V

The Wages of Labour

14th October 1980

The term wages occurs throughout economic literature, but a definitive answer to the question "What are wages?" is even more elusive than the answer to the question "What is a tax?"

In 1776 a French Physiocrat, Condillac, defined wages as "the share of the product which is due to the workers as co-partners" (1). This definition would have been meaningful in mediaeval England but in the second half of the eighteenth century conditions had changed.

In *The Wealth of Nations*, also first published in 1776, Adam Smith observed wages to be dependent upon an agreement reached between an employer and an employee, "whose interests are by no means the same" (2).

He argued that following upon "the appropriation of land and the accumulation of stock", wages had become the price of labour, determined by the demand for labour and the "price of the necessaries and conveniences of life" (2).

The employer and employee relationship is a characteristic of all contemporary developed economies and the status of employee is now so common as to be accepted as the norm. In the UK, for example, 95% of the working population are classed as employees. To assert wages to be the price of labour is, in present conditions, more dogmatic than informative.

As Reedbeck replied to Perpetua, "A spade is never so merely a spade as the word Spade would imply" (3).

Professor A. W. Phillips accepted wages as the price of labour, but for him in 1956 this price was taken to be money wages according to an arbitrary distinction now officially recognised as obsolete (4, pp.283-299).

In 1974 Professor Milton Friedman notably described Professor Phillips' concept as "utterly fallacious", and contended that real wages after adjustment for economic growth is the price of labour. He called upon "every economic theorist from Adam Smith to the present" in support of his contention (5, p.15). What Professor Friedman does not specify is the definition of money wages upon which his concept of real wages must of necessity be based.

If wages are the price of labour arising from a bargain struck between two contracting parties, as Adam Smith maintained, then by the accepted convention in monetary economies this price (or wage) will be a money sum.

The employee stands in the position of a seller, and the least money sum he is prepared to accept in return for his labour will determine the bottom limit below which there can be no contract of employment. In deciding on this least, the employee may be expected to take into account the "price of the necessaries and conveniences of life", and any other advantages and disadvantages connected with taking up the offer of employment.

The employer stands in the position of buyer and the most he is prepared to pay will determine the top limit above which there can be no contract of employment. An employer, when deciding the most he is prepared to pay, may be expected to take into account any other liabilities he will incur as a consequence of entering into the contract, as well as the margin of profit he expects just to make it worth his while to offer that quantity of employment.

With a contract of employment the bargain will be struck somewhere between the least an employee will accept and the most an employer expects it to be profitable for him to pay; the precise point being determined, as with all bargains, by the bargaining skills and the bargaining powers of the contracting parties.

It follows that if wages are the price of labour then, in a monetary economy, wages must be that money sum which is paid by an employer to an employee in fulfilment of a contract of

employment; that is, the money sum often accurately described as take-home pay. For the purposes of economic analysis take-home pay is sometimes better distinguished as the factor income of employees' labour.

The theory of supply and demand states that price tends always to an equilibrium determined by the point of intersection between the supply and demand functions. The theory predicts that price is dependent on market conditions; when supply exceeds demand then the price will tend to fall and when demand exceeds supply the price will tend to rise.

However, so far as movements in take-home pay are concerned, this prediction from theory is not fulfilled following upon changes in labour market conditions. One difficulty is that the purchasing power of a unit of currency is a variable, and as a result money is an 'elastic measure' of price.

To allow for this, most theorists (including Professor Friedman as mentioned above) contend that an adjustment must be made for changes in what Adam Smith called the "price of the necessaries and conveniences of life", or what Keynes and Professor Pigou called more shortly "the price of wage-goods". In certain cases it is contended also that an additional adjustment is needed to allow for economic growth (5, p.20).

These adjustments give rise to two further interpretations of wages considered as the price of employees' labour and, in order to distinguish between the two, we will call the factor income of employees' labour after adjustment for changes in the price of wage-goods *real earnings*, whilst real earnings per unit of output we will call *real pay*. The omnibus terms, wages and real wages, will be avoided so far as possible.

Unfortunately post-war evidence does not show any stable significant statistical relationship between changes in labour market conditions and changes in either real earnings or real pay. As with take-home pay, neither real earnings nor real pay respond to changes in labour market conditions as if they were a price in

accordance with the theory of supply and demand.

Further, a necessary condition for striking a bargain is that the price is measured in units meaningful to both contracting parties; neither the concept of real earnings nor the concept of real pay fulfils this condition. The price of an assortment of goods and services which the employee may wish to purchase with his take-home pay is a matter of direct concern to the employee but not to his employer, as an employer.

The concepts of real earnings and real pay provide measures meaningful to only one of the contracting parties; changes in the price of wage-goods will not affect the point at which the bargain is struck directly, although the changes may be expected to have an indirect effect. The price of wage-goods is however an important factor determining the least an employee is prepared to accept.

Our argument so far leads to the conclusion that whilst take-home pay may indeed be properly considered to be the price of employees' labour arising from a contract of employment, this is not a useful approach for the purposes of economic analysis.

In a contemporary developed economy there is no evidence to support the assertion that the supply and demand of labour are functions of take-home pay. Equally there is no evidence to support the view that the supply and demand of labour are functions of what Professor Friedman and others loosely call 'real wages' – what is defined above as either real earnings, or real pay.

Further, Adam Smith did not argue that the supply and demand of labour are functions of 'real wages', but rather that the supply of labour is a function of 'real wages'. In other words, Adam Smith may be interpreted as recognising, with his usual perspicacity, that the price of wage-goods will affect the least an employee is prepared to accept – the bottom limit in bargaining.

By the time that *The Wealth of Nations* was being written, the demand for employees' labour in the UK was dominated already by the employers' derived demand for the labour of employees at a price limited by competition in the product markets.

At that time also the concerted quest of employers for maximum profits was an unrestrained force in determining the wage bargain, a situation markedly different from today (Essay II). As Adam Smith emphasised, in his day the balance of bargaining power was weighted heavily in favour of the employers who were able, as a result, to sustain their competitiveness and profitability by forcing down the price of labour to the least employees were prepared to accept.

Subsequent changes in statutory law in certain spheres – and some would argue the lack of statutory law in certain other spheres – have altered the balance of bargaining power between employer and employee, although even in the so-called winter of discontent of 1978 and 1979, when claims for higher wages were pressed, the fundamentals as noted by Adam Smith remained valid.

Firms, the employers of today, can offer employment only in a quantity, and at a price, that makes it profitable for them to do so. The limits imposed on a firm are determined largely by forces other than the bottom limit of employees, which is the least take-home pay employees are prepared to accept.

When a contract of employment attracts taxation, the money sum appropriated by the taxing authorities drives a wedge between take-home pay, the *factor income* of employees' labour, and the employer's labour cost, or *factor cost* of employees' labour. This tax element is a money sum which we will call the *employment tax wedge*, and its measure is the difference between the factor income and the factor cost of employees' labour.

The employment tax wedge may be sub-divided into those taxes which in their formal incidence reduce factor incomes, that is the demand-effect taxes, and those which in their formal incidence increase factor cost, the supply-effect taxes.

However, as was argued in Essay IV, employees shift all taxes affecting their own income onto their immediate employers, and therefore, in the longer run, the employment tax wedge as a whole tends to raise the factor cost of employees' labour.

The tendency of the employment tax wedge to raise the factor cost of employees' labour is an important mechanism in the so-called wage and price spiral and in the cost-push explanations of persistent inflation.

Factor income cannot be reduced below the least an employee will accept, whilst the factor cost, which includes the employment tax wedge, cannot rise above the most employers are prepared to pay. Eventually, pressure from the employment tax wedge creates a situation where either employment must contract or the general price level must rise, so as to raise the employers' top limit.

In the UK this kind of pressure on employment and prices is very much a post-war phenomenon. According to the latest official estimates the aggregate factor income of employees' labour for the year 1979 was £85,618 million, whilst the employment tax wedge amounted to £31,173 million, leading to a total aggregate factor cost of employees' labour equal to £116,791 million.

Thus, in 1979 the employment tax wedge was the equivalent of a VAT rate of about 36.5% on employment, whereas in 1938, the employment tax wedge was the equivalent of only a 5.6% VAT rate on employment.

The actual factor cost of employees' labour does not of itself determine a firm's demand for labour; more important is the factor cost of employees' labour relative to the *na-c* that a firm expects to generate as a consequence of incurring that factor cost.

It is this ratio of factor cost to *na-c* which a firm will take into account when it is deciding whether it can profitably expand the employment it offers, or whether it needs to contract. For the economy as a whole the aggregate factor cost of employees' labour expressed as a percentage of the NDA-C provides a measure we will call the *average demand cost of employees' labour* (ADCL).

Corresponding to the ADCL, the aggregate factor income of employees' labour expressed as a percentage of the NDA-C provides for the economy as a whole a measure we will call the *average supply cost of employees' labour* (ASCL).

ESA research results based on UK data indicate that the ASCL is largely independent of labour market conditions, and has a constant secular trend subject to a cyclical movement with peaks at 32 year intervals: 1892/93, 1924, and 1956/57.

On the other hand, research results based on post-war UK data are consistent with the hypothesis that the ADCL operates as if it were a monopoly price of employees' labour which, after a suitable time lag, is significant in determining the conditions in the UK labour market. Given a time lag of five quarters then 81.5% of the UK unemployment rate in the 1970s can be 'explained' in terms of the ADCL as an independent variable.

The term wages, real or otherwise, when used in the sense of a price for labour, is a blunt instrument when applied to the analysis of a contemporary developed economy; worse, attempts to give the term meaning often yield results that are positively misleading.

For example, increases in factor cost which inevitably follow from increases in the employment tax wedge are ascribed, all too frequently, solely to trade union pressures. In certain conditions pressures exerted by trades unions may be a proximate cause of increases in the ADCL, but there is no evidence to suggest that they are ever the primal cause.

In this essay we have now defined six different measures, all of which could be included within the omnibus term wages; each measure is valid from a certain standpoint, or for a particular use.

In addition, the employment tax wedge has been isolated as a measure of the tax liability which contracts of employment incur directly, and by definition, the tax wedge is a money sum equalling the difference between the factor cost and the factor income of employees' labour.

Indices for the different measures are given in Table 1, for the UK, and as may be seen they do not all move in the same direction year by year, or even exhibit similar trends over a number of years.

The ADCL is the most important measure in relation to unemployment since the level of the ADCL is significantly and

positively related to the rate of unemployment. In this context the UK employment tax wedge is of importance also, as the post-war expansion of the wedge has now created a situation in which changes in the ADCL are significantly and positively associated with changes in the employment tax wedge.

The other measures appear to be independent of labour market conditions and reveal no significant statistical relationship to the rate of unemployment, although they may be of great importance in respect of other matters.

As Sir John Hicks argues, "Though trade unions operate on money wages, it is surely in real wages that they are really interested. If a rise in money wages just leads to a rise in prices, they feel themselves cheated; so they return to demand another round of rises in money wages" (6). In the context, it seems that by real wages, Sir John means what we have defined as real earnings.

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Year	Factor income	Real earnings	Real pay	Factor cost	ADCL	ASCL	Tax wedge
1958	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1959	104.9	104.0	100.2	104.7	99.0	99.1	98.2
1960	112.7	110.5	101.0	112.7	98.1	98.1	98.0
1961	120.5	114.8	102.3	121.8	100.2	99.1	107.1
1962	125.8	115.4	101.5	128.5	100.8	98.8	114.2
1963	133.1	119.6	101.4	135.1	99.7	98.3	109.4
1964	143.5	124.6	100.1	146.4	99.5	97.4	112.6
1965	151.8	125.6	98.0	158.2	99.3	95.3	125.4
1966	160.7	128.0	98.1	170.6	101.1	95.3	139.2
1967	166.4	129.1	96.9	180.1	101.1	93.4	151.3
1968	175.4	130.1	93.4	192.9	100.0	91.0	159.0
1969	185.8	130.3	91.5	207.8	98.9	88.4	166.8
1970	205.7	136.2	93.7	232.9	101.5	89.7	178.7
1971	225.0	137.4	93.1	253.3	100.6	89.4	173.7
1972	257.0	147.3	97.3	283.9	100.3	90.8	162.3
1973	294.6	155.4	95.8	325.8	100.0	90.4	162.4
1974	347.1	156.2	98.1	393.7	107.3	94.6	190.0
1975	426.8	155.3	98.6	505.9	109.8	92.6	221.5
1976	479.3	150.9	92.9	575.8	106.8	88.9	223.4
1977	535.7	146.5	88.5	642.6	103.8	86.5	216.2
1978	621.9	156.7	91.8	738.0	104.1	87.7	210.6
1979	734.1	164.9	95.3	867.8	104.9	88.7	210.0

Table 1: UK cost of labour indices for the years 1958 to 1979

VI

The Quantity Theory of Money

28th October 1980

The current dispute between the contemporary Keynesians and contemporary monetarists is often presented in the public debate on policy issues as a dispute between those who believe money does not matter (Keynesians) and those who believe money does matter (monetarists). This is a misleading oversimplification.

In the sphere of counter-inflation policy, the so-called hard line monetarists argue that since "inflation is always and everywhere a monetary phenomenon" (1, p.24), then government control of the money supply is not only necessary, but is also sufficient to halt inflation. Professor Friedman and others (including at this time the Joint Economic Committee of the U.S. Congress) favour a quasi-automatic monetary policy, under which the quantity of money would grow at a steady pre-determined rate.

On the other hand, most Keynesians favour a discretionary monetary policy, and stress the need for a finely-tuned fiscal policy supported as may be required by central physical controls.

Despite this difference, the long run implication of the quantity theory of money is, in general, accepted by all macroeconomists. The proposition, derived from the quantity theory, that in the long run there is a significant and positive association between changes in the quantity of money and changes in the general price level is not in dispute; the accumulated evidence makes it incontrovertible.

The fundamental difference between contemporary Keynesians and contemporary monetarists is in the area of employment theory (Essay VII), rather than monetary theory.

The quantity theory of money has a very long history and, it is claimed, has been taught at Cambridge since the year 1581, when in a crude form it was introduced from France.

From that time to the present day, the quantity theory, in one form or another, has a fairly continuous recorded history in Anglo-Saxon literature, and at the beginning of this century the influence of Alfred Marshall led to its formulation, at Cambridge, in terms of supply and demand.

At the most simple level one form of the Cambridge equations can be written as:

$$P = kO \div M$$

In this equation *P* is the purchasing power of money, *O* is real output, *M* is the quantity of money, and *k* a functional relationship representing the proportion of real income that is held in the form of money. Thus, *kO* represents the demand for money in terms of real wealth, and *M* represents the supply of money.

This equation says that the greater the demand for money *kO*, relative to the supply of money *M*, the greater is the purchasing power of money *P*, and conversely.

An alternative form of the equation can be written as:

$$M = kO \times P$$

In this form *P* is now the price level, the inverse of purchasing power, but both forms of the equation say the same thing in their different ways.

More generally, the pre-Keynesian quantity theory of money is probably best known today as the *equation of exchange* formulated by Professor Irving Fisher of Yale University:

$$M V = P T$$

In this formulation *M* is the quantity of money, *V* its velocity of circulation, *P* is the price level, and *T* the volume of transactions.

Although the equation of exchange is not cast so definitely in the supply and demand tradition of Alfred Marshall, *MV* may still be interpreted as the supply of money, with *PT* representing the demand for money.

What makes Fisher's formulation an equation rather than an identity is that V and T are assumed to be given, so that a change in M must result in a proportionate change in the value of P.

The velocity of circulation V is held to be an institutional datum whilst real output (approximating to $T \div P$) is assumed to be at full employment, by virtue of Say's law.

Professor Fisher, in his work *The Purchasing Power of Money*, first published in 1911, wrote: "Since a doubling in the quantity of money will not appreciably affect either the velocity of circulation or the volume of trade, it follows necessarily and mathematically that the level of prices must double. There is no possible escape from the conclusion that a change in the quantity of money must normally cause a proportional change in the price level."

Thus, before the 1930s, monetary theory was concerned almost exclusively with the determination of the general level of prices. The influence of money on the volume of output and employment was neglected, since it was assumed that the longer run economy tended automatically towards full employment.

From this assumption it followed that if an economy suffered prolonged mass unemployment then the cause could only be some interference with the operation of market forces; for example, employees pricing themselves out of jobs by refusing to accept the current market rate for wages.

The policy implications of the pre-Keynesian quantity theory were therefore simple, and paralysing; government intervention in the workings of the economy could serve no good purpose. To use the terminology then current, money was a veil behind which real forces worked themselves out as if there were no money. An increase in the quantity of money could not achieve any permanent improvement even in a time of severe slump; indeed, it could only be harmful, as all that would happen would be that the price level would rise proportionately.

Although this view lingered on throughout the thirties, the pre-Keynesian quantity theory was increasingly subjected to criticism

and even to ridicule; eventually it came to be thought of as too silly to be worth considering. In 1933 Professor Joan Robinson published the "quantity equation for hairpins" which she attributed to Mr. Kahn (2, p.54). The late Professor Harry Johnson, who went up to Cambridge at the end of World War II as a Corporal in the Canadian Army and was later a colleague of Professor Friedman at the University of Chicago, wrote: "We used to have a lot of fun as students with the Cambridge formulation M = kO x P " (3, p.140).

In the *General Theory*, however, Keynes argued in 1936 that the conditions in which the equation of exchange was fully satisfied would be reached only at the "point of true inflation", when an economy was assumed to reach the attainable theoretical benchmark which he called "full employment" (4, p.289).

Under the influence of Keynes and others the experiences of the inter-war years led to a revolution in monetary theory; it ceased to be primarily concerned with the determination of the general price level and became more an analysis of output.

The post-war years have witnessed what Professor Friedman has described as "The Counter-Revolution in Monetary Theory" (1, p.7). This counter-revolution began with the publication by the University of Chicago of a volume of collected essays, the product of that university's 'Workshop on money and banking' (5). The volume was edited by Professor Friedman, who contributed the leading essay, which was entitled *The Quantity Theory of Money: A Restatement* (5, p.3-21).

Professor Friedman claimed that "Chicago was one of the few academic centres at which the quantity theory continued to be a central and vigorous part of the oral tradition throughout the 1930s and 1940s"; although "the quantity theory that retained this role differed sharply from the atrophied and rigid caricature that is so frequently described by the proponents of the new income–expenditure approach."

However these claims in respect of the origins of the Chicago school, as it became known at first, are open to question and many

monetary theorists, including Professor Harry Johnson, consider the restated quantity theory to be essentially a generalization of Keynes's theory of liquidity preference.

Keynes had defined liquidity preference as "a potentiality or functional tendency, which fixes the quantity of money which the public will hold when the rate of interest is given; so that if *r* is the rate of interest, *M* is the quantity of money, and *L* the function of liquidity preference, we have *M=L(r)*. This is where, and how, the quantity of money enters into the economic scheme" (4, p.168).

In common with Keynes (4, p.194), the Chicago school also emphasises the importance of the demand for money. Friedman wrote in his *Restatement* that, "The quantity theory is in the first instance a theory of the *demand* for money. It is not a theory of output, or of money income, or of the price level" – his italics.

Whilst the origins of the Chicago school may be questioned, what cannot be denied is that it gave a much needed re-emphasis to monetary variables, and cleared the way for important later developments in monetary theory.

The Chicago school created the opportunities for these new developments by first freeing the quantity theory of money from the criticism that it was in conflict with the facts of experience. This was done by making the assertion that questions relating to output and price level were empirical questions outside the domain of a properly defined monetary theory.

Further, by emphasising the existence of a stable demand function for money they could admit that, whilst the velocity of circulation was not a constant, it could be predicted from a few known major variables.

As stated at the beginning of this essay the long run implication of the quantity theory is accepted in general by the majority of macro-economists irrespective of whether they be of Keynesian persuasions or not. No matter what measure of the money supply is used, providing that measure is used consistently and over a sufficiently long run, then there will be seen to be a significant and

positive association between changes in the money supply and changes in the general price level. The existence of this association is incontrovertible but, in the absence of special assumptions, the supporting evidence is quite insufficient to form any definite conclusions as to the direction of causation.

The Chicago school not only re-emphasised this central proposition of the quantity theory but also provided a tool of analysis drawn from pre-Keynesian monetary theory that was very relevant to the post-war problem of inflation. This tool consisted of Fisher's distinction between the real and money rate of interest, and the expected rate of inflation, or deflation, as determining the difference between the two.

However, the developments in monetary theory over the past fifty years have been for the most part in the sphere of the demand for money, whilst it is now the money supply that contemporary monetarists, the successors to the Chicago school, assert to be the causative factor determining changes in the general price level.

As yet there is no consensus of opinion as to what constitutes the quantity of money in a contemporary developed economy with a managed currency, nor as to how this quantity, or money supply, once defined might be controlled.

The only hard evidence supporting the assertion that the quantity of money is a causative factor is the well documented existence of a time lag, admittedly variable in extent, between changes in the quantity of money, when consistently defined, and subsequent changes in the general price level.

A time lag, according to the generally accepted precepts of statistical inference, is not by itself sufficient for determining a direction of causation between variables which can be shown to be significantly associated.

Professor Friedman's assertion, echoed by others, that "inflation is always and everywhere a monetary phenomenon" produced by increases in the quantity of money, together with its corollary that the control of the money supply is both sufficient and necessary

for halting inflation, arises from ignoring the full effects of fiscal policy. For example, when listing the central propositions of monetarism Professor Friedman stated: "Fiscal policy is extremely important in determining what fraction of the total national income is spent by government and who bears the burden of that expenditure. By itself, it is not important for inflation." (1, p.24).

Against this view it was argued in Essay IV that the imposition of any tax which motivated a shifting process, as most taxes do, would tend to raise the general price level, and if government spending persistently necessitated a tax revenue in excess of the economic upper limit to taxation, then inevitably there would be a tendency for the general price level to rise persistently.

A tax induced rising general price level automatically inflates the demand for money for any given level of economic activity.

In these conditions the monetary authorities have a choice: they can meet the tax-inflated demand for money with an inflationary increase in the quantity of money, thus allowing prices to rise with the minimum contraction of activity; alternatively they can refuse to increase the quantity of money, and allow the tax-inflated demand for money to be expended through a trade-off between a rising general price level and a contraction of economic activity.

In both these cases, what we have described as persistent tax inflation and suppressed tax inflation (Essay IV), or any condition between these extremes, the inflated demand for money is caused by fiscal policy; monetary policy, in so far as it determines the quantity of money, acts as the instrument of choice determining the trade-off between more or less price inflation and less or more contraction of activity.

That an economy's response to monetary impulses will be along the lines outlined above is implicitly admitted by Professor Friedman. In his fourth central proposition of monetarism he stated: "If the rate of monetary growth is reduced then about six to nine months later the rate of nominal income and also of physical output will decline. However the rate of price rise will be affected

very little. There will be a downward pressure on prices only as a gap emerges between actual and potential output" (1, p.23).

In other words, if a government persists in creating a condition of excess demand for money, or a deficient supply of money, then this will cause first a contraction of economic activity and in turn the slump conditions will exert a downward pressure on prices.

To this our argument adds only that government can just as easily and effectively create an excess demand for money, or an excess supply of money, by changes in fiscal policy as by changes in the quantity of money.

Further, in the contemporary developed western economies with managed currencies, inflationary increases in the quantity of money are usually made in an attempt to mitigate the effects on output and employment of an excess demand for money caused by misguided fiscal policies.

Monetary policy is not "always and everywhere" sufficient to halt an inflation. Note that, central to the *Restated Quantity Theory of Money* is the existence of a stable demand function for money in real terms; that is in terms of M / P where M is the quantity of money and P is the general price level.

From this contemporary monetarists assert that increases in the quantity of money are always the necessary and sufficient cause of price inflation. What they fail to take into account when applying the *Restated Quantity Theory of Money* to the practical business of policy formulation is that fiscal policy can, and today usually does, cause an unstable demand function for money.

When an inflation is thus caused by a misguided fiscal policy resulting in an excess demand for money, then a restriction of the money supply can lead to a contractionary spiral associated with a persistently rising general price level.

The acceptance of the long run implication of the quantity theory of money requires also the acceptance of fiscal policies which do not persistently inflate the demand for money if a prolonged and intensive economic depression is to be avoided.

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VII

The Rate of Unemployment

4th November 1980

"Next to war, unemployment has been the most widespread, most insidious and most corroding malady of our generation: it is the specific social disease of western civilization in our time. As the grim memory of a not yet distant past, it has burned itself into the consciousness of British working men and women" (1). Thus in January 1943 an article in *The Times* prepared the way for the general public acceptance of the proposition that it is the duty of government to maintain a high and stable volume of employment. This consensus of public opinion followed upon a long academic debate which culminated in the so-called Keynesian revolution.

Pre-Keynesian economic theory, and in particular the pre-Keynesian quantity theory of money, had assumed an automatic tendency towards full employment and, from this assumption, had concluded that intervention by government could be only harmful.

During the decade preceding the outbreak of war the balanced budget policy, which was central to the non-interventionist view, had been subject to increasing criticism. A growing number of academics came to the conclusion that the ritual balancing of the budget each year introduced an arbitrary time period and could lead to harmful results.

In this country, and others, there was then wide support for the proposal that during periods of depression a government should borrow funds to finance spending on public works.

The concept of a multiplier had been introduced into economic theory in June 1931 (2). In the *General Theory*, published in 1936, Keynes argued that the volume of employment was a dependent variable determined by the level of the "effective demand" (Essay III), and that the level of "effective demand" could be influenced

significantly by monetary and fiscal policies.

Of immediate importance politically to the post-war consensus was the publication in 1944 of *Full Employment in a Free Society*, written by Sir William Beveridge, as he then was.

The policy of full employment proposed by Beveridge marked the beginning of a departure from the spirit of Keynes, who had seen his proposals as providing "the conditions of the successful functioning of individual initiative" rather than as opening the way for state socialism. (3, pp.380-381).

Although *Full Employment in a Free Society* proposed a policy for socialising demand, rather than production, the socialisation of the means of production was soon recognised by the immediate post-war government as a useful, arguably even necessary, policy instrument for sustaining 'full employment' (4).

Contemporary Keynesians are the successors to the academic debate over employment theory that took place during the 1930s and 1940s, and the acceptance that the rate of unemployment is a dependent variable determined largely by government policies still continues to distinguish so-called Keynesians, of widely differing convictions, from other macroeconomic theorists.

The acceptability of contemporary monetarism as a basis of public policy flows directly from the concept of a 'natural rate of unemployment'. This concept echoes pre-Keynesian orthodoxy. In its policy implications, the argument that an economy tends automatically towards a 'natural rate of unemployment' is not substantially different from the argument that an economy tends automatically towards 'full employment'; in both cases the rate of unemployment, or volume of employment is assumed to be largely independent of government's fiscal and monetary policies.

In the 1950s the Chicago school freed the quantity theory of money from the charge that it was too silly to be worth considering by dropping the 'full employment' assumption, and asserting that questions relating to the exact division of the effects of a monetary impulse, as between price changes and changes in the volume of

output and employment, were outside the domain of a properly defined monetary theory. This abnegation of responsibility proved to be a serious impediment, since it resulted in policy implications drawn from their monetary theory seeming to be irrelevant to those governments who were not only faced with an apparently insoluble problem of persistent inflation, but also charged with the duty of sustaining a high and stable volume of employment.

The resolution of the Chicago school's self-imposed difficulty came as a by-product of another academic dispute, which followed upon the publication in 1958 of a paper by Professor A. W. Phillips (5). In this paper, Professor Phillips concluded that there existed a statistically significant positive relationship between the rate of increase in money wages and the rate of unemployment. This relationship became known as the Phillips curve hypothesis, and it spawned an extensive literature.

The hypothesis was attractive to governments of the day since it appeared to offer them the possibility of a trade-off between the rate of inflation and the rate of unemployment. Professor Paish, for example, predicted that for the UK an unemployment rate of no more than 2¼ percent would be sufficient for achieving a zero inflation rate.

However, as many theorists, including Professor Friedman, accept that the rate of change in money wages is for most purposes the same as the rate of change in the general price level, the Phillips curve hypothesis also offered a non-monetary explanation of inflation, and thus was in direct opposition to the teachings of the Chicago school.

Eventually Professor Friedman was moved to attack and, by incorporating price expectations into the crude Phillips curve, he argued to the conclusion that "since you can't fool all the people all the time, the true long-run Phillips curve is vertical" (6, p.28).

Friedman's conclusion implied of necessity that for any economy there existed a unique rate of unemployment determined by real factors, towards which the economy automatically tended

and, adapting the terminology of Knut Wicksell, he called this the 'natural' unemployment rate (6, p.14).

The Chicago school incorporated Friedman's conclusion into the body of its teachings in the form of the so-called 'natural unemployment rate hypothesis' (6, pp.38-39) which, following further developments, is more widely known as the expectations augmented Phillips curve hypothesis.

Thus, contemporary monetarism, as distinct from the original Chicago school, not only provides an analysis of inflation but also, through the expectations augmented Phillips curve, provides an analysis of the determination of the level of employment.

In the short run, when inflation is unanticipated, it is admitted in this analysis that there is the possibility of a trade-off between the rate of unemployment and the rate of inflation. In the longer run, however, it is asserted that inflation will be fully anticipated, with prices and money wages moving in step.

When inflation is fully anticipated then unemployment will tend automatically towards its 'natural' rate determined by the point of intersection of the supply and demand curves for labour. Actual unemployment at the 'natural' rate is limited to voluntary and transitional unemployment; that is the only people who are without jobs are those who do not wish to work at the current wage, as determined by market forces, and those who are in transit from one job to another.

From this analysis it is concluded that governments can succeed in reducing unemployment below its 'natural' rate only by policies which cause the actual rate of inflation to exceed the expected rate; that is only so long as inflation is to some degree unanticipated; this probably requires a continually accelerating rate of inflation.

On the other hand, an unemployment rate in excess of the 'natural' rate can persist only for so long as the expected rate of inflation exceeds the actual rate. Any change in the 'natural' rate of unemployment requires a permanent shift in the supply or demand curves for labour, and this it is argued can be expected to come

about only slowly as a result of fundamental changes in the structure of the 'real' side of an economy. Thus, in the long run the 'natural' rate of unemployment for any economy is effectively 'full employment' for that economy.

Superficially there may seem to be little difference between the conclusion that the true long run Phillips curve is vertical and the conclusion reached in Essay IV that in conditions of tax inflation and persistent tax inflation the equilibrium point tends to rise vertically. In both cases it would appear that the theoretical exposition can be reasoned through to a conclusion that for any economy there must exist a 'natural' rate of unemployment.

However, the two cases are fundamentally different. In Essay IV the vertical movement of the equilibrium point follows from the explicit assumption that the supply of money is adjusted to any changes in the demand for money.

When this assumption is dropped then the direction in which the equilibrium point moves is determined by the elasticity of the money supply; and, in turn, it is the direction in which the equilibrium point moves that leads to changes in the volume of output and employment, and to changes in the general level of prices. The trade-off between these two will depend on the relative elasticities of the aggregate demand function and the aggregate supply function.

On the other hand, the monetarists' argument rests on a special case of the quantity theory of money in which the effects of fiscal policy on the demand for money are ignored. In this special case the demand function for money is assumed to be stable, or at least the changes take place so slowly as to be insignificant; from which it necessarily follows that changes in the quantity of money are adjusted to the demand for money through changes in the general price level. Since the long run changes in the general price level are expected to be fully anticipated it is concluded that also in the long run changes in the quantity of money will have little or no effect on the level of economic activity.

Against this it was argued in Essay IV that fiscal policy can, and in the developed mixed economies of today frequently does, cause a permanent shift in the demand for money over all levels of economic activity.

Thus the existence of a 'natural' rate of unemployment arises from a special case of the quantity theory of money, which requires the assumption of a stable demand function for money; and, in turn, a prerequisite for this assumption is the assumption of no change in fiscal policy during the long run period under review. When these important assumptions are dropped, then the rate of unemployment towards which an economy automatically tends will be determined, in the monetary case as in our case, largely by fiscal policy and the elasticity of the money supply.

A further point of superficial similarity between the monetarists' case and the case argued in these essays is that both accept that the rate of unemployment, or volume of employment, is determined by the point of intersection of the supply and demand curves of labour; but the assumptions on which these two curves are drawn are again fundamentally different.

Monetarists assume the two curves to be independent of government monetary and fiscal policies and, in the long run, also independent of the rate of inflation; the curves are assumed to be determined largely by the structure of the 'real' side of an economy. In our case, as argued in Essay V, a significant factor determining the supply curve of labour is the purchasing power of take-home pay, or *real earnings*, and this will take into account, amongst other things, any tax inflation of the price of wage goods.

Changes in the supply curve of labour will be, therefore, significantly related to changes in the ASCL.

The demand curve for labour is significantly related to the aggregate supply function. This must be so by definition, since the aggregate supply price is the expected proceeds from the output of a given amount of employment that will just make it worth the while for firms to give that amount of employment. A significant

factor determining the aggregate supply price, and therefore the aggregate supply function, is tax liability (Essay III).

Of special importance in determining the demand curve for labour is the *employment tax wedge* since, for the economy as a whole, what employers will take into account is not the ASCL but the ADCL, which includes the employment tax wedge (Essay V). It is, for example, the level of the ADCL that in the longer run will determine the additional profitability of labour saving investments.

Thus, whilst accepting that the rate of unemployment will tend automatically towards a rate determined by the point at which the supply and demand curves for labour intersect, and whilst not denying the importance of the structure of the 'real' side of an economy, we argue that fiscal policy must also be isolated as an independent variable that is significant in determining the supply and demand curves for labour and their point of intersection.

Monetarists are agreed that over at least the last decade the 'natural rate of unemployment' has increased, but there is little agreement as to the causes, and the many explanations have all been strongly contested. Our analysis leads to the conclusion that the increase in the 'natural rate' which they are observing is the result of fiscal policy.

That monetarists find the concept of a 'natural' unemployment rate, derived from the expectations augmented Phillips curve, useful for the purposes of theoretical exposition may be held to provide some justification for its use within the limits of theory, but the necessary assumptions must be made explicit.

When the assumptions are implicit then the use of the concept becomes dangerously misleading. Politicians are encouraged in the fond belief that they can squeeze out inflation between elections by pursuing a restrictive monetary policy, whilst the rate of unemployment, after a temporary hump caused by inflationary expectations exceeding the actual rate of inflation, will tend automatically towards some 'natural' rate independent of their monetary and other policies.

Action on the basis of this belief courts disaster, not only for the politicians, but also for the unfortunate economy they have been elected to govern. In conditions of tax inflation a restrictive monetary policy must restrict economic activity and in conditions of persistent tax inflation monetary policy can operate only as an instrument of choice between extremes; either a continuation of persistent tax inflation or, alternatively, suppressed tax inflation. The former condition is what Professor Friedman calls inflation; the latter is what both employers and employees know to be a slump.

The rate of unemployment towards which an economy tends automatically in the long run is statutory, rather than natural.

It is a statutory rate of unemployment in the sense that in any contemporary developed mixed economy it is highly sensitive to changes in public policies, and in particular to changes in the precise combination of monetary and fiscal policies.

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VIII

Taxing and Spending

11th November 1980

The generally accepted principle of public finance today is that western governments adjust their tax revenue requirements to their spending decisions – the exact opposite to the discipline imposed on private persons (1, Chap. III).

What constitutes proper public spending and its amount are considered as political issues, to be determined by circumstances and in relation to political objectives (2, Part I, Chap. 3). As the volume of spending is determined by political considerations, then from the accepted principle of public finance it follows, that the volume of taxation must also be determined primarily by political considerations.

This line of reasoning has led many of those concerned with public finance, perhaps a majority, to prefer the psychological approach to taxation; any limit to government spending is seen as being imposed largely by the size of the tax burden that taxpayers are prepared to bear. 'Incentive' and 'disincentive' have become the key political words, with economic forces either being ignored or relegated to a secondary role.

Admittedly those charged with the job of managing the public finances of the western countries today are on the horns of a dilemma; the *golden maxim* of J. B. Say that, 'the best of all taxes is that which is least in amount' has a lasting appeal to their free electorates who, at the same time, demand ever increasing public spending in order to mitigate a variety of injustices.

Not even Adam Smith offers an escape; although he emphasised the dangers of profligate government, he too reasoned himself to the conclusion that "After all the proper subjects of taxation have been exhausted, if the exigencies of the state still continue to

require new taxes, they must be imposed upon improper ones" (3, Book V, Chap. II, part II).

In the United States the Laffer curve approach to public finance (so called after its originator, Arthur Laffer of the University of Southern California) is now being acclaimed as the psychological solution to their immediate political predicament. Laffer suggests that tax revenue will be zero not only when tax rates are zero but also when they are at 100% since at this point, it is argued, all production in the monetary economy will cease.

Hence it is concluded that both tax revenue and total output are maximised when the actual tax rate coincides with the apex of a curve – the Laffer curve – drawn to connect the two points of zero tax revenue. Other than at the apex of the curve there must always be two tax rates which will yield the same tax revenue; a higher tax rate and a lower tax rate. That segment of the curve that lies between the apex and the 100% tax rate is considered to be a prohibitive rate for government since any tax within this range can be cut with resulting gains in both tax revenue and output. The rate of tax at which the electorate desires to be taxed is assumed to be that rate which coincides with the apex of the Laffer curve.

The policy implication drawn from this argument is that cuts in public spending are not a necessary prerequisite for cuts in U.S. tax rates; indeed tax cuts can be expected to increase revenue and thus allow for increased public spending.

In the existing political climate of the U.S. the Laffer Curve hypothesis is attractive to politicians for it can be used in support of popular proposals for an across the board cut in Federal taxes, such as those embodied in the Kemp-Roth Tax Reduction Bill,[26] as well as for various State and Local tax reduction propositions of the type that have found favour amongst the electorate in the State of California.

Although the Laffer curve hypothesis is more of a public relations exercise than an addition to the knowledge of the theory

26 Also known as the Economic Recovery Tax Act, enacted in August 1981.

and practice of public finance – it may be considered as a generalisation of Dean Swift's 'arithmetic of the customs' which Adam Smith agreed held perfectly true in certain conditions (3, Book V, Chap. III, Part II) – nonetheless, it does, in a simple way, communicate the idea that for any economy in given conditions there exists an optimum level for government taxing and spending.

By contrast, the Physiocratic school provides an example of the economic approach to public finance which is unique in the history of western economic doctrines. Members of the school proposed that public expenses should be met from the proceeds of a 30% rate on what they called the net product, which in their system was the sole natural source of public revenue.

But these eighteenth century economists argued their case through beyond this 'single tax' proposal. Dupont de Nemours concluded, "If unfortunately it be true that three-tenths of the annual product is not sufficient to cover the ordinary expenditure, there is only one natural and reasonable conclusion to be drawn from this, namely, curtail the expenditure" (4, p.61).

The uniqueness of this school lies in the explicit formulation of the principle that public spending should be adjusted to a public income determined by a natural norm; Henry George also arrived independently at a 'single tax' proposal (5), and many others have proposed limits to taxation based on various criteria.

During the forty years prior to the outbreak of the Great War there was a lively debate amongst continental writers on public finance as to the limits of government spending and taxing. In a volume published in Paris in 1906 Leroy-Beaulieu concluded: "...we believe that it is possible to fix an empirical lower and upper limit to taxation. The limits are not inflexible, they are only approximate. We consider that taxation is very moderate when the sum of national, provincial and municipal taxes does not exceed five or six per cent of private incomes. Such a proportion should be the normal rule in countries where the public debt is small and whose politics are not dominated by the spirit of conquest.

Taxation is still bearable, though heavy, up to ten or twelve per cent of the citizens' income. Beyond twelve or thirteen per cent the rate of taxation is exorbitant. The country may be able to bear such a rate, but it is beyond doubt that it slows down the growth of public wealth, threatens the liberty of industry and even of the citizens, and hems them in by vexation and inquisition necessarily entailed by the complexity and the height of the taxes" (6, p.164).

In 1945 Colin Clark published the results of an empirical study based on pre-war evidence from which he concluded the economic upper limit to taxation to be 25% of the net national income (7). Keynes, who was editor of the Economic Journal when the original manuscript was received, agreed with Clark; and in a personal letter to him dated 1st May 1944 he wrote, "In Great Britain after the war I should guess that your figure of 25% as the maximum tolerable proportion of taxation may be exceedingly near to the truth. I should not be at all surprised if we did not find a further confirmation in our post-war experience of your empirical law." Clark later confirmed his original result on the basis of post-war estimates from nineteen countries (8).

Clark's empirical law is of particular interest since, unlike the Laffer curve, it can be quantified and offers a testable hypothesis on the basis of published national accounts. Clark's hypothesis states that when general government tax revenue plus borrowing requirement persistently exceeds 25% of the net national income (NNI), the economic upper limit to taxation, then economic forces are set in motion which result inevitably in a general rise in costs and prices. The NNI, as defined by Colin Clark, is a market price aggregate approximating to the NNA-C as defined in Essay II.

At a seminar held in London in January 1977 Clark also stated: "What cannot, so far as I know, be found is a country with taxation exceeding 25% of the net national income which is not faced with some degree of inflationary pressure" (9, p.22).

This is a very modest claim for a hypothesis which, although mostly ignored by contemporary Keynesians and monetarists, is

fully consistent with UK experience over the past 25 years at least.

Taking the annual rate of inflation as the dependent variable P, and general government tax revenue plus borrowing requirement, expressed as a percentage of the NNI, as the independent variable T, then the official *Blue Book*[27] estimates for the UK for the years from 1955 to 1978 inclusive give a regression equation:

$$P = -31.2 + 0.97T \qquad t = 10.109 \qquad R^2 = 0.84$$

Thus Colin Clark's empirical law 'explains' 84% of the annual inflation rate in the UK since 1955, although it would appear that during this time the economic upper limit to taxation has been around 32% rather than the 25% estimated by Clark.

However, the direction of causation is only assumed for the purposes of testing, and the assumption is not proved by a highly significant statistical relationship; also it must be remembered that for an equation based on an empirical law 'a trend is a trend is a trend so long as it does not bend'. In other words a conclusion in respect of the direction of causation and the prediction both require a theoretical foundation.

A theoretical foundation for Clark's empirical law is provided by the tax analysis presented in Essay IV. In the final paragraph of that essay it was concluded, "for any economy in given conditions there is an economic upper limit to taxation determined by the total amount of tax revenue which, given a sufficiently elastic money supply, the economy can transpose into an effective incidence through the tax shifting process without any permanent contraction in the level of economic activity."

This prediction from theory is confirmed by the method of statistical investigation pioneered by Colin Clark. Moreover, our method of tax analysis, in conjunction with Keynes's methods of analysis, enables the matter to be taken further than a statement about the economic upper limit to taxation.

27 The National Accounts for the United Kingdom, as published by the Central Statistical Office. The method of calculation is shown in the appendix.

General government's propensity to spend out of tax revenue plus borrowing requirement must in all cases be equal to unity, since the borrowing requirement is a net aggregate; any surplus on the current account is carried over to the capital account and the repayments of debt are deducted from gross borrowings. On the other hand, the rest of the economy's propensity to consume out of their disposable income, taking one year with another, will be generally less than unity. Thus, given a sufficiently elastic money supply, any increase in general government spending (measured as general government tax revenue plus borrowing requirement) up to the economic upper limit to taxation will tend to expand the volume of output and employment and, in the longer run, an expansionary fiscal and monetary policy up to this limit will be consistent with a stable general price level; tax inflation will continue only so long as the tax-shifting process continues.

From this it follows that the economic upper limit to taxation is in the longer run also an optimum level, from this point of view, for general government spending; and one at which, in the given conditions for an economy, the volume of output and employment will be maximised consistent with a stable general price level.

However, the maximum volume of employment that would be consistent with a stable general price level is unlikely to coincide with a zero unemployment rate, or any condition that could rightly be described as 'full employment'. Equally it must not be confused with Professor Milton Friedman's concept of a 'natural' rate of unemployment.

What we will call optimum employment will depend not only on the structure of the 'real' side of an economy, but also on the direction of general government spending, and the methods of raising tax revenue. Optimum employment is, from an opposite point of view, a statutory rate of unemployment (Essay VII).

The statutory rate of unemployment that, in any economy, coincides with optimum employment can only be reduced in the longer run by changes to the underlying structure of the 'real' side

of the economy, or more importantly, by a radical reform in the system of public finance.

Macroeconomics is concerned primarily with the operation of economic forces; it seeks to explain the workings of an economy in terms of economics, and not in terms of psychology. The long run optimum level for general government taxing and spending is determined by economic forces.

However, the psychological effects of policy decisions related to taxing and spending are of great importance and they must never be ignored. For example, high marginal rates of taxation will almost certainly act as a disincentive and constrain the level of economic activity, yet they are not inconsistent with government maintaining the long run optimum volume of taxing and spending.

Thus the level of economic activity that coincides with the optimum condition must be expected to be significantly influenced by the psychological effects of policy decisions. Yet to assume, as does the Laffer curve hypothesis, that there is some unique rate of taxation at which the electorate desires to be taxed is dangerously misleading; in the optimum conditions specified above it is not the rate of tax that is most likely to constrain economic activity but the method by which the optimum tax revenue is raised, and the way it is spent.

The Physiocrats, and also Henry George, concerned themselves with the fundamental issues of public finance but, unfortunately, current practice in the mixed developed economies renders even a reformulation of their findings irrelevant to the solution of our most pressing and immediate difficulties.

Today, the first steps must be towards achieving the long run optimum, and these will be discussed in Essays IX and X which deal with the necessary aspects of monetary and fiscal discipline.

The theory and practice of public finance are fundamental to economic prosperity and social harmony. Speaking at Hastings in March 1891, Mr. Gladstone stated, “The finance of the country is ultimately associated with the liberties of the country” (10, p.3).

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The full quotation is:

"The finance of the country is ultimately associated with the liberties of the country. It is a powerful leverage by which English liberty has been gradually acquired.... If the House of Commons by any possibility lose the power of the control of the grants of public money, depend upon it, your very liberty will be worth very little in comparison. That powerful leverage has been what is commonly known as the power of the purse – the control of the House of Commons over public expenditure."

W. E. Gladstone (From a speech at Hastings on March 17, 1891)

IX

Monetary Discipline

18th November 1980

What is the money supply? This is another question to which a careful search through the literature will yield no definitive answer.

In an era of managed currencies, money supply theory has become a theory looking for a fact. The insistence of contemporary monetarists on the need to control the money supply is based on deduction from developments in monetary theory that have been for the most part on the demand side.

Quantity theorists conclude that the demand function for money is stable in real terms (Essay VI), and from this contemporary monetarists deduce that changes in the general price level, in the form of inflation and deflation, must be caused by changes in the money supply. The policy implication of this is irrefutable: to halt inflation governments must control the money supply.

Their policy advice is fully consistent with the long-established quantity theory of money and is supported by well documented and extensive evidence; in the long run there is a significant and positive association between changes in the quantity of money, consistently defined, and changes in the general price level. But governments cannot be expected to implement a policy of effective control over the money supply when those offering this advice disagree about what the money supply is.

What matters to government is not what the money supply should be from some particular theoretical point of view but what the quantity of money is that they can effectively control. The latter approach leads to practical positive answers.

First, in an economy with a managed currency, the government can certainly control the quantity of notes and coin in circulation,

since they are the monopoly supplier. Second, a government has the power to ensure that the banking system keeps within a certain ratio of reserve assets to deposits. This requirement need not impose any undue restraint on the banking system providing that the statutory ratio in force for the time being is in line with that ratio determined independently by banking prudence.

Thus, by requiring the banking system to operate on a *cash base*, a government can control the maximum quantity of money through its monopoly control over the stock of issued notes and coins.

Alternatively a government can require the banking system to operate on an *eligible reserve asset base*, as is current practice in the UK. In this case bank deposits are limited to a multiple of cash reserves plus certain other reserve assets specified as eligible by the monetary authorities.

In the Bank of England publication *Competition and Credit Control*, it was stated that: "Eligible reserve assets will comprise balances with the Bank of England (other than special deposits), British government and Northern Ireland government Treasury bills, company tax reserve certificates, money at call with the London money market, British government stocks with one year or less to final maturity, local authority bills and (up to a maximum of 2 per cent of eligible liabilities) commercial bills eligible for rediscount at the Bank of England." (1)

The use of a wider reserve asset base does not necessarily impair government control; indeed their control could be improved by the greater flexibility allowed by a wider reserve base. For example, whilst it may be relatively easy to add to the stock of notes and coin in circulation, it is not so easy to contract that stock; while at the right price, the quantity of interest bearing paper can be expanded in the knowledge that it will, in due course, be contracted automatically by maturing.

In a monetary economy with a managed currency it is possible for the government to control, within very narrow margins, the

quantity of money defined as the stock of notes and coin in circulation plus time and demand deposits (e.g. M3). Accepting that the velocity of circulation is a predictable variable (although not a constant as most pre-Keynesians believed), it follows that control over the quantity of money *M* carries with it the possibility of control over the money supply *MV* in Irving Fisher's equation of exchange.

Thus, governments can fulfil the requirements of the restated quantity theory of money (Essay VII), for it is possible for them to control within very narrow margins a consistently defined money supply.

In the current debate over money supply policy the issues that are proving most intractable are matters of practical politics rather than monetary theory. Governments can control the money supply, but are they prepared to accept the disciplines necessary for the exercise of that option? To what extent have past indisciplines pre-empted an immediate policy option?

In the UK, for example, a significant quantity of eligible reserve assets, as specified by the Bank of England, are in the hands of the non-bank private sector (NBPS), and these represent a continuing threat to effective government control over the money supply.

When conditions conspire to make it profitable, the clearing banks can purchase these assets from the NBPS and then use them under present arrangements as a base for expanding their NBPS advances and deposits by the agreed multiple. Such circumstances would force a government to intervene in order to maintain control over the money supply – by extending controls; by changing their specification for eligible reserve assets; by open market operations (that would prove, in all probability, inordinately expensive to little effect); or by the use of some other policy instrument.

At the time of writing the UK government are considering scrapping the current Bank of England specification for eligible reserve assets as a preliminary to moving towards a cash, or monetary, base control. However, such issues of practical policy

arise from special conditions, and although of immediate importance in the UK, their full consideration lies outside the scope of these essays. We will concern ourselves with the more general disciplines which any government must accept if it is to gain and sustain monetary control.

Control of the money supply requires that governments eschew certain other forms of control. Further, they must impress upon all concerned that in future these controls will not be used. This may not be easy for in many cases the controls are so long established that they are expected by the market as a matter of tradition and often fully discounted before imposition.

For example, governments must accept the discipline of not attempting to control or influence the market rates of interest as an instrument of monetary policy. As every monopolist knows, or is soon taught by experience, he can control either the quantity he will supply and leave the price to be determined by market forces; or the price at which he will supply and leave the quantity demanded at that price to be determined by the market; he cannot control at the same time both quantity and price.

The acceptance of this discipline does not preclude the Bank from fixing a penal rate of interest at which it is prepared to act as a lender of last resort, but it does preclude it from exerting its influence to determine open market rates.

It has to be accepted generally that current market conditions determine the price at which government paper is bought and sold, and not the other way round; the buying and selling of government paper by the monetary authorities must not be used to influence market conditions.

In addition to relinquishing certain controls, the government must accept other monetary disciplines if they are to sustain effective control over the money supply. The acceptance of monetary discipline does not require a reversion to the annual ritual of balancing the budget but it does limit the methods by which any deficit may be covered and imposes a restraint on the

magnitude of budgetary deficits that can be incurred.

It is self-evident that governments are precluded from printing money, but equally they must avoid being forced, by the necessity of covering a deficit, into creating an excess of eligible reserve assets, either immediately or at some future date. Long-dated stocks inevitably become short-dated eligible reserve assets, or in a cash base system, expand the base on maturity.

For the banking system as a whole the supply of base assets is dependent on the net financial transactions, immediately between the Bank on one side and the banking system on the other, but ultimately between government and the rest of the economy. The short-run methods appropriate to smoothing out the ebb and flow are matters for the expertise of those charged with the task of the practical management of the government's financial affairs, rather than for macro-economic theory; but excessive budgetary deficits – and persistent deficits must eventually become excessive – will prevent effective monetary control regardless of the expertise.

However, the acceptance of this aspect of monetary discipline is dependent upon the acceptance of fiscal discipline and this will be discussed further in Essay X.

Having defined the money supply in terms of a quantity of money that government can control, the other important question for monetary theory is the actual quantity that should be provided in any given condition. As argued in earlier essays, interference by monetary policy with the volume of output and employment is reduced to a minimum when the authorities adjust the quantity of money so that the money supply equates with the demand for money; but in certain conditions this policy will fuel inflation (Essay IV).

Against this argument quantity theorists argue that there is a stable demand function for money in real terms and this leads many of them to the conclusion that the quantity of money must be adjusted to changes in real output if inflation is to be avoided. Professor Harry Johnson stated, "inflation is associated with and

ultimately causally dependent on a rate of increase in the money supply significantly in excess of the rate of growth of real output – the difference between the two rates being the rate of inflation" (2, p.326).

The difficulty with this approach when applied to the practical business of policy making is that a decision has to be made as to the expected rate of growth for real output, and for making this decision not only is there no proven method, but the quality and quantity of the available evidence leaves much to be desired.

It is this lack of knowledge and reliable information that has led quantity theorists to favour for the present a non-discretionary money supply policy. Professor Friedman opposes the use of changes in the quantity of money as an instrument of stabilisation policy on the grounds that "our present understanding of the relation between money, prices and output is so meagre, there is so much leeway in these relations, that such discretionary changes do more harm than good" (3, p.26).

He favours, with others, a quasi-automatic monetary policy (Essay VI) and concludes, "A steady rate of monetary growth at a moderate level can provide a framework under which a country can have a little inflation with much growth" (3, p.28). Similar considerations have led Professor Hayek to favour a policy which holds the quantity of money constant.

The preliminary results of ESA research suggest that the estimation of a long-run trend for the rate of growth of real output may not be so difficult, or subject to such a margin of error, as is frequently imagined (4).

UK evidence is consistent with the hypothesis that the rate of growth of real output on a 'full employment' basis is a constant for long periods of time – at least for as long as twenty five years.

Since 1955 the rate for the UK has been constant at fractionally over 3% per annum. Further, since 1955, calculations show a stable and significant positive relationship between the rate of unemployment, given a time-lag of six months, and an output

deficiency measured from output potential on a 'full employment' basis.

It must be emphasised at this stage that the implications of these results for long-run monetary policy are at best only tentative, but they do indicate that once an economy has achieved an optimum equilibrium level of economic activity (Essay VIII), then a quasi-automatic monetary policy, as favoured by Professor Friedman but based on the long-run trend of the rate of growth of real output potential, would provide the monetary conditions for sustaining a prosperous community. However, during the interim period, whilst an economy is moving towards an optimum equilibrium level of economic activity, it would seem that a discretionary monetary policy is necessary – at least in the sense of a succession of monetary targets closing towards the target required for the establishment of a quasi-automatic monetary policy.

The developed mixed economies of today with their managed currencies require government to exercise effective control over the money supply if inflation and its associated injustices are to be avoided. Governments can effectively control the quantity of money and through this control the money supply but in order to do so they must also accept certain monetary disciplines.

As a minimum, they must not exert undue influence in the money markets; they must exercise restraint in the volume and methods of borrowing; they must not print money; and, in the longer run, they must be prepared to pursue a quasi-automatic monetary policy.

Further, contrary to the siren sounds of contemporary monetarists, they must accept certain fiscal disciplines, since fiscal policies can de-stabilise the demand for money and so nullify even the most well-intentioned monetary policy. The necessary fiscal disciplines will be discussed in Essay X.

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X

Fiscal Discipline

25th November 1980

In a developed mixed economy with a managed currency it is possible for government to control the money supply provided that they accept certain monetary disciplines – in particular, restraints and limitations upon their actions affecting the money market.

Further, their control over the money supply can be exercised within margins sufficiently narrow in the long run to prevent either persistent inflation or persistent deflation (Essay IX).

To this extent the arguments put forward in these essays support the assertion of Professor Milton Friedman and his followers that a money supply policy is not only necessary but sufficient to prevent inflation, or to halt an inflation once it has started. This support is subject, however, to an important limitation; our agreement with Professor Friedman's assertion applies only where the government abnegate responsibility for the volume of output and employment that happens to be associated with a zero rate of inflation.

When government are not prepared to abnegate this particular responsibility, then in addition to monetary disciplines they must also accept certain fiscal disciplines; that is, practical restraints and limitations in respect of taxing and spending.

Fiscal disciplines are necessary since the rate of unemployment towards which an economy tends automatically is not a 'natural' rate determined by 'real' factors but is, as argued in Essay VII, a 'statutory' rate determined largely by the combination of monetary and fiscal policies.

As argued in Essay IV, when general government spending necessitates a general government tax revenue plus borrowing requirement persistently in excess of the economic upper limit to taxation, then the general price level will tend to persistently rise

and, as a result, persistently increase the demand for money at any given volume of output and employment.

In this condition of persistent tax inflation the achievement of a target level of economic activity requires government to meet the ever increasing demand for money with an inflationary supply of money. In other words, given persistent tax inflation, government cannot both sustain a particular volume of output and employment and, at the same time, maintain effective control over the money supply. They have to give way on the one or the other.

Should a government attempt to impose a restrictive money supply policy then there will be a trade-off between rising prices and a contraction of activity; the more inelastic the money supply the lower will be the rate of inflation and the greater will be the contraction of activity. If a money supply policy consistent with a zero rate of inflation is imposed then the economy must contract and a stable equilibrium will be re-established only when the mass unemployment of people and resources is sufficient to bring the tax shifting process to a halt.

Thus, when fiscal policy creates a condition of persistent tax inflation then monetary policy amounts to little more than an instrument of choice between two social evils; either a zero rate of inflation and an intensive economic slump with prolonged mass unemployment; or persistent inflation, probably at an accelerating rate, and more output with less unemployment.

The fundamental fiscal discipline is, therefore, that government restrain their spending to an amount that ensures the economic limit to taxation is not persistently exceeded. This discipline requires also that government pursue a balanced budget policy taking one year with another since, as argued in Essay IX, even small persistent deficits must result eventually in excessive debt charges.

Tax inflation (Essay IV) is indistinguishable in appearance from persistent tax inflation. Whilst both are caused by the tax shifting process, the former is a temporary condition which government

can create, even though it is not exceeding the economic limit to taxation. When a government causes tax inflation by fiscal policy and at the same time pursues an inelastic money supply policy then the movement to a new stable equilibrium point will be associated inevitably with some contraction of economic activity.

Having caused tax inflation, a government is temporarily in a similar position as if it had caused persistent tax inflation; it must either abnegate its responsibility for the volume of output and employment or accept that for a time fiscal policy will determine money supply policy. An economy is better served during a period of tax inflation when the increasing demand for money relative to any given level of economic activity is met by an inflationary supply of money; the inflation will be only temporary but the alternative contraction of the volume of output and employment will be prolonged if not permanent.

Keynes argued that an economy can be in a stable equilibrium with substantial and prolonged under-employment of people and resources, as aggregate demand does not expand automatically to meet an excess aggregate supply.

We conclude like Keynes that a slump, or semi-slump, caused by the opposition of a restrictive money supply policy and an inflationary fiscal policy can be most easily and speedily rectified by an increase in the money supply. If government wish to avoid rising prices they should not inflate the demand for money in the first place, but having inflated the demand for money by fiscal policy a restrictive money supply policy must operate to inflict further and more lasting damage to the economy.

Given conditions of tax inflation, then the only alternative expansionary policy to that of inflating the money supply is for government to undertake a radical reform of public finance by switching from taxes which motivate tax shifting to methods of raising public revenue which do not motivate tax shifting.

However, a policy of fundamental reform is neither easy nor speedy and in any conditions other than the optimum (Essay VII)

the time taken to effect the necessary reform will prolong the slump conditions and cause unnecessary hardship.

Control of the money supply is both necessary and sufficient to eradicate inflation, but the corollary is that the volume of output and employment will be determined largely by fiscal policy. If monetary policy is not to act as a brake on economic activity then the supply of money must be adjusted to the demand for money. Therefore, if government are to prevent inflation by monetary policy, then they must not inflate the demand for money by their fiscal policy.

To avoid inflating the demand for money government must accept certain fiscal disciplines. First, they must restrain spending to an amount that ensures general government tax revenue plus borrowing requirement does not exceed the economic limit to taxation. Second, taking one year with another, they must pursue a balanced budget policy. Third, they must not raise additional tax revenue by taxes that motivate tax shifting. Finally, if the volume of output and employment is to be sustained at that maximum which, in the given conditions, is consistent with a stable general price level, the longer-run budget balance must approximate to the economic limit to taxation.

That the volume of government taxing and spending should be related to a ‘full employment’ objective is central to contemporary Keynesian economics, although various so-called Keynesians might interpret ‘full employment’ very differently. Generally they argue that up to the ‘full employment’ benchmark, an expansion by government of aggregate monetary demand will result always in some expansion of output and employment; any resulting inflationary tendencies should, they say, be damped down by the use of government controls in various appropriate combinations.

On the other hand the arguments of contemporary monetarists imply that providing government spending is fully covered by tax revenue and ‘true’ borrowing then the volume of that spending is not important in determining either the rate of inflation or the rate

of unemployment. Inflation, they say, is "always and everywhere a monetary phenomenon", and can be squeezed out of an economy by a restrictive money supply policy. In the long run, an economy tends automatically towards a natural rate of unemployment which is effectively full employment for that economy, and this 'natural' rate is unaffected by the rate of inflation.

From the monetarists' point of view fiscal policy is the means by which a national economy exercises a choice, "in determining what fraction of total national income is spent by government and who bears the burden of that expenditure." (1, p.24).

The arguments put forward in these essays run contrary to those of both contemporary Keynesians and monetarists.

We have concluded that providing government accept certain monetary disciplines they can control the money supply and thus eradicate inflation by monetary policy (Essay IX). To this extent we agree with the monetarists.

However, we have concluded also that fiscal policy is important in determining the demand for money and in determining the volume of output and employment that is consistent with a zero rate of inflation. In this we disagree with the monetarists although without taking up the contemporary Keynesian point of view.

We have defined an optimum at which, in the given conditions for any economy, it is possible to sustain the maximum volume of output and employment consistent with a stable general price level. For this optimum to be attained, however, it is necessary for government to accept not only monetary disciplines but also fiscal disciplines.

Any improvement upon this optimum in the sense of expanding the volume of output and employment requires a radical change in the accepted principles and methods of public finance, as well as structural changes within an economy.

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Synopsis and Discussion of the Essays

Essay I – Introduction to macroeconomics

Macroeconomics is concerned with the working of the economy as a whole, in terms of households, firms, and government. It also examines supply and demand as aggregates at the national level.

In the post-war years, many governments attempted to maintain a level of full employment through the use of demand management techniques. Later, this gave way to the theories of monetarism.

This series of essays takes a supply side view, and begins with the unit of production, which is the firm. The firm brings together the human and non-human means of production. In turn, this leads to the definition of two types of corresponding factor incomes – labour income and property income. (This analysis of the firm will be continued in the next essay.)

The contemporary mixed economy finds itself at some position between the extremes of a private enterprise economy and a state socialist economy. Under these conditions, governments typically resort to taxation as the means of obtaining state revenues. Over time, there tends to be a steady increase in the level of taxation.

The Keynesian revolution was expected to redress the problems of unemployment and inequality through higher levels of taxation and government spending, but in western economies it also set in train a period of high inflation and continued unemployment.

In the 1970s and 1980s, the theories of monetarism seemed to offer governments a way out of this dilemma, but only in terms of a choice between the two evils of unemployment and inflation. Is there another way?

The essays presented here explore an alternative approach to securing an optimum level of output and employment, consistent with a stable level of prices, in a contemporary mixed economy – a limited but vital first objective.

Essay II – The firm

To move towards an optimum level of output and employment, consistent with a stable general level of prices, it is necessary to work in terms of the national aggregates of supply and demand.

The output of the economy as a whole consists of the net output of individual firms expressed in monetary terms.

The income of a firm is its turnover from sales and the receipt of subsidies, less its expenditure on its purchases from other firms. From this it is necessary to deduct the value of stocks used up in production, and any purely inflationary increase in the valuation of stock – referred to as stock appreciation in the national accounts.

This leads to the *gross added-claim* of the firm – the net income before allowing for depreciation, or *ga-c*. The term *added-claim* indicates the use of a monetary measure, recognising that money is a claim on the general output of the economy, and also avoids the use of the potentially misleading term *added value*.

The *net added-claim*, or *na-c*, can then be found by subtracting an estimated allowance for depreciation. In the national accounts this allowance is described as capital consumption.

From this *net added-claim*, the firm meets the take-home pay of employees, and all its tax liabilities. The residual amount is profit. In general, firms will seek a minimum acceptable level of profit.

The corresponding national aggregates are then defined as the *Gross* and *Net Domestic Added Claim*, *GDA-C* and *NDA-C*.

The official estimates of the Gross Domestic Product at market prices, plus subsidies, may be taken as a measure of the *GDA-C*.

The *GDA-C* plus aggregate net property income from abroad is called the *Gross National Added-Claim*, *GNA-C* and, making the same addition, *NDA-C* becomes the *Net National Added-Claim* or *NNA-C*. These aggregates will be considered again in Essay V.

As these aggregates are derived from economic statistics, they include the amount of profit actually realised by firms in a given period and not the minimum margin of profit described above.

Essay III – The general theory of employment

According to Keynes's *General Theory*, the volume of output and employment, under given conditions, is a dependent variable. It is determined by the point of intersection of the aggregate supply function and the aggregate demand function.

The aggregate supply function is written in the form $Z = \Phi(N)$, where Z represents the aggregate supply price of the output of a given amount of employment, N.

The aggregate demand function is written in the form $D = f(N)$, where D represents the proceeds firms expect to receive from the output of a given amount of employment, N.

It is expected that an economy will tend towards a level of output and employment, N, at which $Z = D$.

The aggregate supply and demand functions are a supply side view only, even though they are expressed in terms of output and employment. They are based on the traditional approach of Alfred Marshall and reflect the nature of bargaining in a trading economy.

The aggregate supply price corresponds to the bottom limit, or lowest acceptable selling price of firms; but the aggregate demand is not the top limit, or highest acceptable price of buyers; it is the aggregate of each firm's estimate of the likely proceeds of a given level of output and employment, represented by N.

A further important consideration is that Keynes, in the *General Theory*, assumed a near tax-less environment, in which factor cost and factor income are taken to be practically the same. This is not a realistic assumption, and Keynes did not rely upon it in making policy recommendations.

Whilst government spending is reflected in the overall estimate of demand, the overall effect of taxation upon aggregate supply is not developed. This is a potential weakness in Keynes's analysis.

To be useful in a contemporary context the aggregate supply price must include take-home pay, general tax liabilities, and the minimum margin of profit, from the viewpoint of the firm.

Essay IV – Taxation

As defined by Hugh Dalton, a tax is "a compulsory contribution imposed by a public authority, irrespective of the exact amount of service rendered to the tax payer in return, and not imposed as a penalty for any legal offence."

There is then a distinction to be made between the formal and the effective incidence of a tax, and these two concepts are linked by the complex process of tax shifting. In practice, however, it is almost impossible to trace fully the effective incidence of any tax.

Whatever its formal incidence, a tax liability is a component of the aggregate supply price, but in its operation, it may or may not give rise to an immediate change in the aggregate supply price.

Those taxes that do cause an immediate quantitative change in the aggregate supply price can be classified as supply effect taxes, and those that do not, demand effect taxes.

Supply effect taxes are likely to cause contraction of output and higher prices; but it is also necessary to consider the likelihood that government will then spend the additional tax revenue received – its propensity to spend, as compared with the rest of the economy – and thus increase demand. This may reduce the contraction of output, but may also lead to a further rise in the level of prices.

Demand effect taxes do not give rise to an immediate increase in the aggregate supply price. Whether a demand effect tax affects aggregate demand again depends upon the relative propensity to spend of government in comparison to the rest of the economy.

Demand effect taxes will however give rise to tax shifting, such that the general price level is increased, with no necessary change in either output or employment – similar to the condition described by Keynes as true inflation.

The tax shifting process ceases when the formal incidence of the taxation, which originally motivated the shifting, is transposed into an effective incidence which cannot, or does not, motivate any further shifting.

Supply effect taxes give rise to an immediate upward shift in the aggregate supply function, but will also set in motion a similar process of tax shifting until the effective incidence of the tax does not, or cannot, motivate further shifting.

Thus, the tax shifting process provides a mechanism whereby an economy moves from one stable general price level to another, higher general price level in response to an increase in taxation.

An elastic money supply is a necessary condition to minimise the effect upon output and employment; an inelastic money supply will tend to minimise the rise in the general price level, and lead to a greater contraction of output and employment.

Where the level of taxation cannot be absorbed through the tax shifting process then, given an elastic money supply, there may be no general price level consistent with a stable equilibrium point, and persistent tax inflation may result.

On the other hand, if the money supply is inelastic, an increase in the general level of taxation may lead to a prolonged contraction of economic activity that does attain to a stable equilibrium point.

From this it follows that, for any economy in given conditions, there is an economic upper limit to taxation. This is determined by the total amount of tax revenue which, given a sufficiently elastic money supply, can be transposed into a stable effective incidence through the tax shifting process without any permanent contraction in the level of economic activity.

Providing tax revenue does not exceed the economic upper limit to taxation, then tax inflation is a finite condition corresponding to a limited period, during which the tax shifting process causes an economy to move from one stable general price level to another, higher stable general price level.

When tax revenue exceeds the economic upper limit to taxation then monetary policy, and the elasticity of the money supply, will be decisive in determining the effect of a change in the amount and distribution of taxation upon output, employment, and the general level of prices.

Essay V – The wages of labour

Wages are the money sum paid by an employer to an employee in fulfilment of a contract of employment. This is take-home pay, also referred to as the factor income of employees' labour.

Most theorists advocate that this should be adjusted to allow for changes in the purchasing power of money, and other influences.

With these adjustments, it is possible to formulate two precise definitions for the purposes of economic analysis, in money terms:

- *real earnings*, as the adjusted price of employees' labour, and
- *real pay*, as real earnings per unit of output produced.

There is no evidence to suggest that either of these measures, or indeed take home pay, responds to changes in the labour market in accordance with the theory of supply and demand. This is partly because the supply price of labour is affected by purchasing power, and partly because the demand for labour is affected by the market trading conditions experienced by employers. Firms are only able to offer employment in a quantity, and at a price, that is profitable.

In addition, the contract of employment is typically subject to both supply effect taxes and demand effect taxes. These will act to drive a wedge between the factor cost of labour, as experienced by the employer, and take-home pay, the factor income of labour.

In the longer run, the *employment tax wedge* tends to raise the factor cost of employees' labour. Eventually, this pressure means that either employment must contract, or prices must rise.

An important consideration for the firm is the ratio of the factor cost of labour to the *net added-claim* it is expected to generate.

For the economy as a whole, the aggregate factor cost of labour as a share of the NDA-C is the *average demand cost of labour* (ADCL), and the aggregate factor income of labour as a share of the NDA-C is the *average supply cost of labour* (ASCL).

Statistics show that ADCL is an independent variable, giving rise to a level of unemployment that is the dependent variable. In practice, it acts as a monopoly price of employees' labour.

Essay VI – The quantity theory of money

Contemporary economists, whether Keynesian or monetarist in their outlook, are in agreement that increases in the money supply lead to higher prices in the longer run. They differ, however, in the matter of employment theory.

The pre-Keynesian quantity theory of money is often presented in the form of the equation of exchange: $M\,V = P\,T$.

If V, the velocity of circulation of money, and T, the volume of transactions, are both held constant, then a change in the quantity of money M, results in a change in the level of prices, P. Thus, until the 1930s, the emphasis was on the determination of the level of prices, on the assumption that full employment was automatic.

Keynes in the *General Theory* argued that this was strictly only applicable at the "point of true inflation", when an economy had attained what he called "full employment."

The monetarists, however, by disconnecting the quantity theory of money from any consideration of its practical effect upon output and employment, were able to assert that inflation is exclusively a monetary phenomenon.

Furthermore, the monetarist view entirely overlooked the effect of taxation on movements in output and employment, which must be considered in conjunction with monetary policy.

This offered an attractive policy prescription for government, as it then appeared that control of the money supply would be both necessary and sufficient to halt excessive inflation.

Inflation, however, is not always and everywhere an exclusively monetary phenomenon, nor is monetary policy necessarily always sufficient to control inflation; fiscal policy is also important.

When the level of taxation is above the economic upper limit, monetary policy will determine the balance between inflation and unemployment. Fiscal policies are therefore required which do not persistently inflate the demand for money, if a prolonged economic depression is to be avoided.

Essay VII – The rate of unemployment

The pre-Keynesian concept of a balanced budget assumed that there would be an automatic tendency towards full employment.

Over time, this gave way to the idea of intervention, in the form of deficit spending and borrowing on the part of government, to maintain full employment – a concept not very clearly defined.

Contemporary monetarism proposes instead the existence of a 'natural rate' of unemployment – assuming once more that the rate of unemployment is practically independent of government policy.

Under monetarism, the natural rate of unemployment becomes, in effect, the full employment condition for a given economy. This, however, is a special case resting upon a false assumption of little or no change in fiscal policy in the longer run.

By contrast, that rate of unemployment to which an economy automatically tends in the longer run is more properly described as a statutory rate, resulting from a precise combination of fiscal and monetary policy. Fiscal policy, in particular, must be identified as an independent variable, affecting both the supply and the demand curves of labour, and also their point of intersection.

Essay VIII – Taxing and spending

It is common practice for governments to adjust tax revenue requirements to meet their prior spending decisions, regardless of any consideration of a natural constraint or an optimum level, but this has not always been the recommended approach.

The economic upper limit of taxation can be approximated by statistical methods which tend to support the theory set out earlier. It can also be shown that this is an optimum level in terms of both output and employment, for a stable general price level.

This will not necessarily correspond to a given concept of full employment, but is a prerequisite for any attempt at a fundamental reform of the general system of public finance. In turn, it requires the acceptance of both monetary and fiscal discipline.

Essay IX – Monetary discipline

In a modern economy with a managed currency, government can control the money supply through the proper regulation of the banking system. If this course is followed, however, it will not be possible for government to control the market rate of interest.

Government should also resist the temptation to 'print money', whether to reduce its own future indebtedness, or otherwise.

It then remains for government to match the supply of money to the expected demand. This is difficult to predict, but statistics have suggested that the general longer term growth of output in the UK approximates to 3 per cent per annum, adjusted from year to year.

This estimate could then be refined by practical experience.

Essay X – Fiscal discipline

In the long run, it is possible to control the money supply and thus avoid persistent inflation or deflation, but this may not lead to an optimum level of output and employment.

For this to be achieved, and also to avoid inflating the demand for money, government must accept certain fiscal disciplines.

Firstly, spending must be restrained so that general government tax revenue, plus borrowing, does not exceed the economic upper limit to taxation.

Secondly, taking one year with another, government must adopt and pursue a balanced budget policy.

Thirdly, it must avoid raising additional tax revenues by means of taxes that motivate the process of tax shifting.

Finally, if the volume of output and employment is then to be sustained at a maximum level consistent with a stable general price level for the given conditions, then the longer-run budget balance must approximate to the economic upper limit to taxation.

Only then will progress towards a more fundamental reform become possible, and this should entail the adoption of improved methods of raising public revenue that are not open to tax shifting.

The upper limit of taxation

National accounting statistics can be used in different ways for different purposes. Colin Clark had based his empirical estimate of an economic upper limit of taxation on data for the pre-war period, and although he stood by his conclusions at an IEA seminar thirty years later, he did not provide a definite theoretical basis.

The economic upper limit is the point beyond which any further increase in the level of taxation does not lead to a real increase in output, employment, or public revenue, but may be inflationary.

Burgess, following Clark, tested the data series available for the UK in several different ways, and some examples of his method of calculation are set out below. He concluded that an upper limit of taxation may apply to a given economy under specified conditions, and could be expected to change under different conditions.

Some time after the IEA seminar had taken place Burgess wrote to Ralph Harris, General Director of the IEA, setting out a method of calculation of the upper limit of taxation for the UK based upon the available *Blue Book* statistics for the period 1955 to 1976.[28]

This is reproduced in Table 1 below where the columns are:

(i) General government tax revenue

(ii) General government borrowing requirement

(iii) General government tax revenue plus borrowing requirement – column (i) plus column (ii)

(iv) Net national income (NNI)

(v) Tax as a share of net national income – column (i) as a percentage of column (iv)

(vi) Tax and borrowing as a share of net national income – column (iii) as a percentage of column (iv)

(vii) Annual percentage price rise.

28 The IEA seminar was published as *The State of Taxation*, IEA Readings No. 16, 1977. The letter from Burgess to Harris followed on 9th September 1978.

Year	(i) £m	(ii) £m	(iii) £m	(iv) £m	(v) %	(vi) %	(vii) %
1955	5,740	214	5,954	17,668	32.41	33.70	3.63
1956	5,909	510	6,419	19,313	31.01	33.24	4.49
1957	6,380	527	6,907	20,405	31.27	33.85	3.36
1958	6,794	487	7,281	21,249	31.41	34.25	2.75
1959	7,021	565	7,586	22,307	31.39	33.92	0.91
1960	7,252	715	7,967	23,691	30.61	33.63	1.24
1961	8,036	731	8,767	25,294	31.77	33.64	2.90
1962	8,797	537	9,334	26,533	33.15	35.18	3.90
1963	9,023	789	9,812	28,241	31.95	34.74	1.78
1964	9,779	994	10,773	30,843	31.71	34.93	3.49
1965	11,014	1,188	12,202	33,183	33.19	36.77	4.97
1966	12,106	957	13,063	35,242	34.35	37.07	4.04
1967	13,507	1,880	15,387	37,179	36.33	41.39	2.83
1968	15,166	1,308	16,474	40,060	37.86	41.12	4.93
1969	17,087	-294	16,793	42,880	39.85	39.18	5.57
1970	19,195	-153	19,042	47,026	40.82	40.49	5.96
1971	20,169	1,310	21,479	52,430	38.47	40.97	8.34
1972	21,436	2,110	23,546	57,799	37.09	40.74	6.74
1973	24,177	3,669	27,846	66,566	36.32	41.83	8.39
1974	29,852	5,616	35,468	75,022	30.79	47.28	16.38
1975	38,347	10,029	48,376	93,379	41.07	51.81	23.57
1976	44,695	7,921	52,616	109,873	40.68	47.88	15.41

Source: National Income and Expenditure, Blue Book, CSO.

Table 1: Tax, borrowing and inflation, 1955 to 1976 (1)

Linear regression analysis showed the following results, where R^2 is the coefficient of determination: [29]

A. Inflation, plotted against tax as a share of net national income
$Y = -33.0303 + 1.1151\ X$ (where $R^2 = 0.563$)

B. Inflation, plotted against tax and borrowing as a share of net national income
$Y = -31.1746 + 0.9678\ X$ (where $R^2 = 0.836$).

These results implied that, for the UK during the period studied, inflation is predicted when government tax and borrowing exceeds 32.2% of the net national income.

The relationship is shown in graph form in Figure 1 below.

A higher level of confidence was obtained by using a concept of taxable capacity. This was defined as general government taxation and borrowing plus net disposable property income, assuming that all taxes are finally shifted onto property income. This change was intended to eliminate the effect of small cyclical variations of take-home pay as a proportion of the net national income.

This method is shown in Table 2 below where the columns are:

(i) General government tax revenue plus borrowing

(ii) Taxable capacity – domestic (home produced income only)

(iii) Taxable capacity – national (including income from abroad)

(iv) Tax and borrowing as a share of domestic taxable capacity – column (i) as a percentage of column (ii)

(v) Tax and borrowing as a share of national taxable capacity – column (i) as a percentage of column (iii)

(vi) Annual percentage price rise.

29 The coefficient of determination is a measure of how well the relationship fits the recorded data. A value of 0.5 would indicate that only half of the data points are explained by the proposed relationship, whereas a value of 1.0 would imply that all the data points are explained and that the relationship can be used to forecast future outcomes with a high degree of confidence.

Year	(i) £m	(ii) £m	(iii) £m	(iv) %	(v) %	(vi) %
1955	5,954	7,997	8,171	74.45	72.87	3.63
1956	6,419	8,361	8,590	75.77	74.43	4.49
1957	6,907	8,786	9,035	78.61	76.44	3.36
1958	7,281	9,425	9,718	77.25	74.42	2.75
1959	7,586	10,180	10,442	74.52	72.64	0.91
1960	7,967	10,957	11,190	72.71	71.50	1.24
1961	8,767	11,453	11,707	76.55	74.89	2.90
1962	9,334	12,056	12,056	77.42	75.33	3.90
1963	9,812	12,853	13,253	76.03	74.03	1.78
1964	10,773	14,145	14,538	76.16	74.40	3.49
1965	12,202	15,708	16,143	77.68	75.59	4.97
1966	13,063	16,573	16,960	78.82	77.02	4.04
1967	15,387	17,917	18,295	85.88	80.10	2.83
1968	16,474	20,082	20,417	82.03	80.70	4.93
1969	16,793	22,203	22,701	75.63	73.97	5.57
1970	19,042	24,018	24,574	79.27	77.49	5.96
1971	21,479	26,210	24,115	81.95	80.40	8.34
1972	23,546	28,737	29,271	81.94	80.44	6.74
1973	27,846	39,511	33,834	85.65	82.30	8.39
1974	35,468	35,976	37,204	98.50	95.13	16.38
1975	48,376	45,818	46,718	105.45	103.55	23.57
1976	52,616	54,662	55,841	96.26	94.22	15.41

Source: National Income and Expenditure, Blue Book, CSO.

Table 2: Tax, borrowing and inflation, 1955 to 1976 (2)

Linear regression analysis then showed the following results:

A. Inflation, plotted against tax and borrowing as a share of domestic taxable capacity
$Y = -44.8358 + 0.6267 X$ (where $R^2 = 0.917$)

B. Inflation, plotted against tax and borrowing as a share of national taxable capacity
$Y = -44.5433 + 0.6388 X$ (where $R^2 = 0.909$)

These results implied that, for the UK during the period studied, the theoretical upper limit of general government tax revenue plus borrowing requirement would be close to 70% of taxable capacity.

This relationship is shown in graph form in Figure 2 below.

In a later manuscript note, Burgess set out an alternative method of calculation covering the years from 1955 to 1980. The data for this analysis is set out in Table 3 below, where the columns are:

(i) Net national product at market prices

(ii) Disposable income from employment

(iii) Taxable capacity, or the effective tax base – column (i) minus column (ii)

(iv) General government tax revenue plus borrowing

(v) Tax and borrowing as a share of net national product – column (iv) as a percentage of column (i)

(vi) Tax and borrowing as a share of taxable capacity – column (iv) as a percentage of column (iii)

(vii) Annual percentage inflation rate.

This method gave very similar linear regression results:

A. Inflation, plotted against tax and borrowing as a share of net national product
$Y = -33.4050 + 1.0390 X$ (where $R^2 = 0.808$)

B. Inflation, plotted against tax and borrowing as a share of taxable capacity
$Y = -46.8486 + 0.6524 X$ (where $R^2 = 0.869$)

Year	£m (i)	£m (ii)	£m (iii)	£m (iv)	% (v)	% (vi)	% (vii)
1955	17,842	9,990	7,852	5,954	33.37	75.83	3.76
1956	19,314	10,865	8,449	6,419	33.24	75.97	6.24
1957	20,401	11,426	8,975	6,907	33.86	76.96	3.31
1958	21,269	11,675	9,593	7,281	34.23	75.90	3.96
1959	22,386	12,244	10,142	7,619	34.03	75.12	1.24
1960	23,708	13,155	10,553	7,967	33.60	75.50	1.21
1961	25,317	14,070	11,247	8,757	34.59	77.86	3.35
1962	26,557	14,694	11,863	9,334	35.15	78.68	3.96
1963	28,290	15,718	12,752	9,812	34.68	76.94	2.13
1964	30,374	16,751	14,123	10,773	35.47	76.28	3.12
1965	33,203	17,725	15,478	12,202	36.75	78.83	5.06
1966	35,309	18,766	16,543	13,063	37.00	78.96	4.51
1967	37,260	19,428	17,832	15,402	41.34	86.37	3.10
1968	40,295	20,483	19,812	16,567	41.11	83.62	4.42
1969	43,220	21,699	21,521	16,848	38.98	78.29	5.46
1970	47,233	24,042	23,191	18,986	40.20	81.87	7.27
1971	52,732	26,305	26,427	21,594	40.95	81.71	8.86
1972	58,099	30,048	28,051	23,587	40.60	84.09	7.85
1973	67,271	34,411	32,860	27,777	41.29	84.53	6.60
1974	75,881	39,757	36,124	35,712	47.06	98.86	14.80
1975	94,568	49,887	44,681	48,493	51.28	108.53	27.18
1976	112,606	55,990	56,616	52,592	46.70	92.89	14.55
1977	128,146	62,998	65,148	55,659	43.43	85.43	14.01
1978	146,807	73,452	73,355	65,720	44.77	89.59	10.66
1979	171,031	87,087	83,944	80,138	46.86	95.47	15.05
1980	198,477	102,692	95,785	96,294	48.52	100.53	19.04

Source: National Income and Expenditure, Blue Book, CSO.

Table 3: Tax, borrowing and inflation, 1955 to 1980

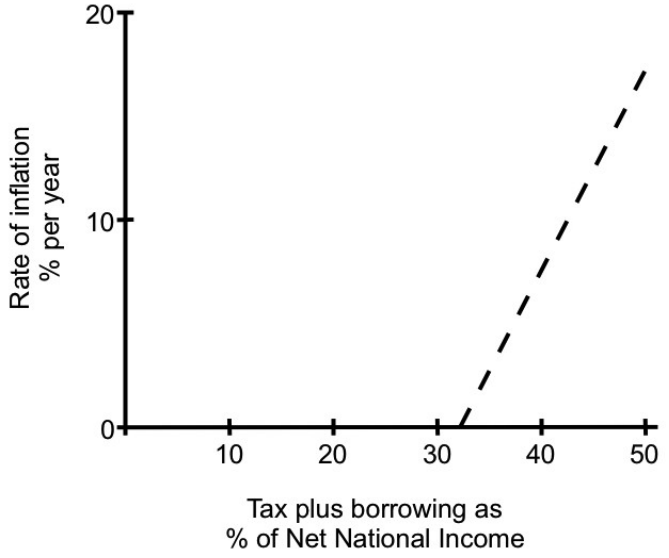

Figure 1: Tax, borrowing and inflation, 1955 to 1976 (1)

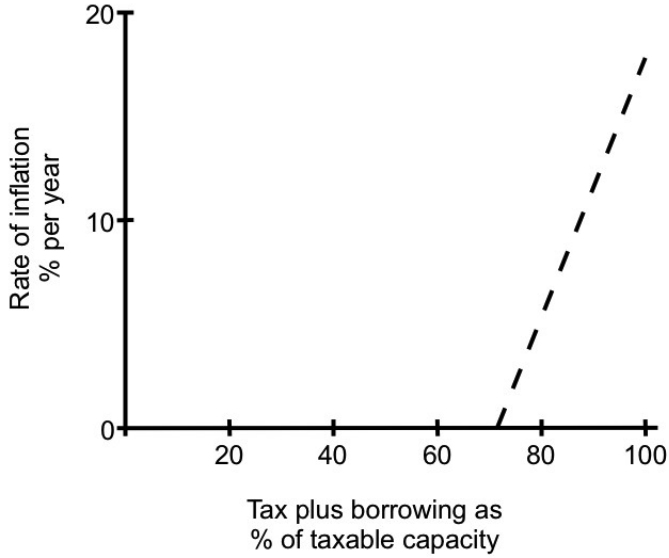

Figure 2: Tax, borrowing and inflation, 1955 to 1976 (2)

A balanced budget

In a series of seminars on Applied Economics at the beginning of 1984, Burgess described three alternative scenarios for the level of government spending using data for the year 1982. Inflation had fallen from 11.9% the previous year to 8.6%, and the purpose was to show whether a further reduction was possible without causing a rise in unemployment, or contraction of the economy.

The first scenario corresponded to the latest available statistics for the year 1982. General government taxation at £107,088m and a borrowing requirement of £6,117m resulted in total government spending at 46.64% of the net national product of £242,703m.

The second scenario was based on unemployment below 1%, as in 1955, with an expanded net national product of £364,055m.

The third scenario further assumed that government spending equal to the borrowing requirement would no longer be needed.

These models are shown in Table 4, where the columns are:

(i) General government tax revenue

(ii) General government borrowing requirement

(iii) General government tax revenue plus borrowing requirement

(iv) Net national product at current market prices

(v) Tax plus borrowing as a share of the net national product

(vi) Annual percentage rate of inflation.

	£m (i)	£m (ii)	£m (iii)	£m (iv)	% (v)	% (vi)
Scenario 1	107,088	6,117	113,205	242,703	46.64	8.61
Scenario 2	107,088	6,117	113,205	364,055	31.10	-
Scenario 3	107,088	0	107,088	364,055	29.42	-

Source: National Income and Expenditure, Blue Book, CSO.

Table 4: Tax, borrowing and inflation for 1982

The national aggregates

According to the standard system of presentation in the national accounts, the output of the economy in any given year is produced by firms and can be purchased at current market prices. In an open economy allowance must also be made for imports and exports.

Using the expenditure approach, the Gross Domestic Product is represented by the purchases of consumers, investment by firms, final consumption by government, plus exports, less imports.

This can be represented by the expression:

Gross Domestic Product (GDP) = C + I + G + E – M

By convention, this includes indirect taxation within the total of market prices, but does not include subsidies paid out to firms by government. Other adjustments are made for increases in stock not offered for sale, which are treated as being part of production.

The adjustment to factor cost is then made by removing indirect taxes and adding subsidies, leading to the Gross Domestic Product at current factor cost; this includes the majority of direct taxes.

The addition of net property income from abroad as received by UK residents leads to the Gross National Product at current market prices, and the Gross National Product at current factor cost.

Finally, the removal of an allowance for depreciation – capital consumption in the national accounts – produces the Net National Product at current factor cost. This is described in the *Blue Book* as the 'national income', and includes most forms of direct taxation.

By a similar process, using the income approach, the total of all the different forms of income accrued in the UK, after adjustments, is also equal to the Gross Domestic Product at current factor cost.

Thus, the system of national accounts represents a model of the economy; the main national aggregates are not necessarily suitable for a particular analysis, or the evaluation of policy alternatives.

In addition to the many adjustments required to bring the two different approaches into balance, there is also a residual error.

Table 5 below sets out an alternative approach consistent with the Essays in this volume. It is based upon a seminar on national accounts which took place in October 1985, and the figures were taken from the relevant tables in the *Blue Book* for 1984.

In the upper part of Table 5, GDP at current market prices is built up from the components of the standard expenditure model.

Net property income from abroad is added and an estimate of capital consumption subtracted to derive the Net National Product.

The addition of subsidies paid out to firms by government gives the total contribution of firms to the output of the economy, shown in the table as the adjusted Net National Product at current market prices; minor adjustments are also needed to account for taxation of certain social security contributions and the residual error.

In the lower part of the table the income approach is used to distinguish between take-home pay, government tax revenue, and disposable net property income.

This can be represented by the expression:

Net National Product (NNP) + subsidies = THP + T + P

The total of these three categories of income is identical to the adjusted Net National Product at current market prices.

The relative shares of take-home pay, government tax revenue, and disposable net property income, as components of the adjusted NNP, are shown in the right-hand column; this does not take into account government borrowing.

The interpretation of the national accounting statistics is now a highly complex and specialised activity, with many limitations and pitfalls. These examples, intended for teaching purposes only, give some indication of the underlying economic relationships.

		£m	%
1.	Consumer expenditure (C)	194,673	
	Gross domestic fixed capital formation (I)	55,319	
	General government final consumption (G)	69,655	
	Less: Adjustment for stocks, etc.	- 177	
	Total domestic expenditure	319,470	
	Plus: Exports (E)	91,736	
	Less: Imports (M)	- 91,852	
	GDP at current market prices	319,354	
	Plus: Net property income from abroad	3,304	
	GNP at current market prices	322,658	
	Less: Capital consumption	- 38,371	
	NNP at current market prices	284,287	
	Plus: Subsidies received by firms	7,797	
	Plus: Social security adjustment	1,300	
	Plus: Residual error	5,336	
	Adjusted NNP at current market prices	298,720	
2.	Income from employment	180,342	
	Less: Taxation applied	- 50,946	
	Take-home pay (THP)	129,396	43.3
	Government tax revenue (T)	123,358	41.3
	Net property income	64,500	
	Less: Taxation applied	- 18,534	
	Disposable net property income (P)	45,966	15.4
	Adjusted NNP at current market prices	298,720	100.0

Source: National Income and Expenditure, Blue Book, CSO.

Table 5: The national aggregates for 1984

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