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**CENTRE FOR THE MICROECONOMIC
ANALYSIS OF FISCAL POLICY**

ANNUAL REPORT
1999



E·S·R·C Centre for the
Microeconomic Analysis of Fiscal
Policy at the Institute for Fiscal Studies

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MICROECONOMIC ANALYSIS OF FISCAL POLICY**

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In 1991, the ESRC and IFS created a new centre of academic excellence in microeconomic research — the Centre for the Microeconomic Analysis of Fiscal Policy.

Research at the Centre falls into several main areas: tax policy and work incentives; the distribution of income and the structure of tax and social security; consumer demand and saving behaviour; human capital investment; company taxes; investment and research and development; European tax co-ordination; and local government finance.

Alongside its research, the Centre promotes academic dialogue in its subject areas, serves as a training centre and conveys findings to policymakers with enough clarity to influence decisions. By organising conferences, providing a base for foreign visitors, sponsoring young scholars and providing media briefings, and through its network of Research Associates and Fellows, the Centre strives to be a national and international resource.

This report reviews the Centre's work for the period October 1998 to September 1999 and presents an account of ongoing research activity including future developments.

Copy-editor: Judith Payne

E·S·R·C Centre for the Microeconomic Analysis of Fiscal Policy

The Institute for Fiscal Studies
7 Ridgmount Street
London WC1E 7AE
Telephone: +44-171-291 4800
Fax: +44-171-323 4780
Email: mailbox@ifs.org.uk
Internet: <http://www.ifs.org.uk/>

**E·S·R·C CENTRE FOR THE
MICROECONOMIC ANALYSIS OF FISCAL POLICY**

**ANNUAL REPORT
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MICROECONOMIC ANALYSIS OF FISCAL POLICY**

RESEARCH CENTRE STAFF
1999

THE MANAGEMENT TEAM

Centre Director
Centre Deputy Director
IFS Director
IFS Deputy Director

Professor Richard Blundell
Professor Costas Meghir
Andrew Dilnot
James Banks

RESEARCH PROGRAMME DIRECTORS

Consumption Sector
Corporate Sector
Personal Sector

James Banks
Stephen Bond
Andrew Dilnot

RESEARCH STAFF AND SCHOLARS

Nicholas Bloom (Corporate Sector)
Laura Blow (Consumption Sector)
Lucy Chennells (Corporate Sector)
Tom Clark (Personal Sector)
Monica Costa Dias (Research Scholar)
Ian Crawford (Consumption Sector)
Lorraine Dearden (Personal Sector)
Carl Emmerson (Personal Sector)
Alissa Goodman (Personal Sector)
Rachel Griffith (Corporate Sector)
Hamish Low (Research Scholar)

Julian McCrae (Personal Sector)
Monica Paiella (Research Scholar)
Gillian Paull (Personal Sector)
Howard Reed (Personal Sector)
Susann Rohwedder (TMR Scholar)
Barbara Sianesi (Research Scholar)
Helen Simpson (Corporate Sector)
Zoë Smith (Consumption Sector)
Sarah Tanner (Consumption Sector)
Jayne Taylor (Personal Sector)
Frank Windmeijer (Corporate Sector)

**E·S·R·C CENTRE FOR THE
MICROECONOMIC ANALYSIS OF FISCAL POLICY**

RESEARCH CENTRE STAFF
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RESEARCH FELLOWS

Orazio Attanasio (University College London)
Tim Besley (London School of Economics)
Martin Browning (University of Copenhagen)
Michael Devereux (University of Warwick)
Richard Disney (University of Nottingham)
David Miles (Imperial College)

Gareth Myles (University of Exeter)
Ian Preston (University College London)
Stephen Smith (University College London)
Tony Shorrocks (University of Essex)
John Van Reenen (University College London)
Ian Walker (University of Warwick)

RESEARCH ASSOCIATES

Jerome Adda (University College London)
Alan Duncan (University of Nottingham)
Christian Dustmann (University College London)
Amanda Gosling (University of Essex)
Jonathon Haskel (Queen Mary and Westfield)
Christopher Heady (University of Bath)

Peter Lambert (University of York)
Hamish Low (University of Cambridge)
Stephen Machin (University College London)
Steve Redding (London School of Economics)
Kim Scharf (University of Warwick)
Gianluca Violante (University College London)

INTERNATIONAL RESEARCH ASSOCIATES

Manuel Arellano (CEMFI)
Olympia Bover (Bank of Spain)
Agar Brugiavini (Venice)
Steven Davis (Chicago)
Kevin Denny (University College, Dublin)
Bill Gale (Brookings)
Bronwyn Hall (Berkeley)
Dietmar Harhoff (ZEW, Mannheim)
Hilary Hoynes (Berkeley)

Tor Klette (Statistics Norway)
François Laisney (ZEW, Mannheim)
Arthur Lewbel (Boston College)
Thomas MaCurdy (Stanford)
Thierry Magnac (CREST, INRA, Paris)
Jean-Marc Robin (CREST, INRA, Paris)
Tom Stoker (MIT)
Frank Vella (Rutgers)
Guglielmo Weber (Padua)

ADVISORY COMMITTEE

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Frances Cairncross
Carey Cooper⁺
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HM Treasury
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Loughborough University

⁺ESRC Liaison Member

1. Directors' Review

With a growing emphasis placed on evidence-based policy research by the UK government and by the ESRC, we have seen an increasingly important role for the Centre at IFS. Maintaining a balance between ensuring significant long-term research developments and being influential in the unfolding policy debate has been at the heart of our strategy. With much of this debate focusing on the issues of work incentives, relieving long-term poverty, returns to training and education, the provision of pensions, encouraging innovation and the taxation of companies, our research objectives and informing the policy debate have gone hand in hand.

Achieving high profiles in the media and in top academic journals have been important dual objectives that we have maintained during this past year. There have been a large number of radio and television appearances, more than 50 refereed publications and over 40 books and book chapters. The impact of our pre-Budget analysis, published in association with Goldman Sachs, is easy to assess with major articles and commentaries in the financial and economics pages of all the major newspapers. Our research publications over this past year have appeared in such prestigious journals as *Econometrica*, *Journal of Public Economics*, *Economic Journal*, *Quarterly Journal of Economics*, *Scandinavian Journal of Economics* and *Journal of Econometrics*. Researchers at the Centre have also played an important role on the editorial boards of many journals.

There are many research and policy issues that we have in common with researchers elsewhere in Europe and further afield. Over the period covered by this report, there has been a further increase in collaborative projects. This has partly come about through the close ties built up in the research networks on savings and on innovation and productivity supported by European Union funding. This collaboration also comes from the common policy evaluation questions being addressed by researchers around the world and the need to share information on methods for analysis of data and appropriate statistical techniques for microeconomic research. The European networks complement the already existing research exchange we have in these areas with researchers in North America. They have resulted in many joint publications, for example the NBER study on pensions and retirement incentives.

Our aim at the Centre has always been to make sure that researchers have access to all the relevant microeconomic data sources. We make extensive use of all the main British datasets. Our research has highlighted the need for time-series and longitudinal information at the micro level. This is satisfied either through the use of long series of repeated cross-sections, such as the Family Expenditure Survey and the General Household Survey, or through the use of panel data, such as the UK company panel data and the British Household Panel Survey. At the same time, we are always on the look-out for new data sources that might add to our knowledge. In the UK, for example, we have heavily exploited the administrative data on unemployment duration, JUVOS, in our evaluation of welfare-to-work programmes as well as the rich data on benefit sources and incomes in the Family Resources Survey. Our interest in comparative microeconomic analysis across countries has led us to the detailed use of foreign micro-data sources — for example, the Consumer Expenditure Survey for the US and the Bank of Italy Household Budget Survey.

Although our research rests heavily on good-quality micro-databases and appropriate statistical analysis, the final critical cog in our approach to research is the simulation of policy proposals. Centre research has been at the forefront of the development of micro-model-based policy reform simulation. For example, our Simulation Program for the Analysis of Incentives (SPAIN) has now been developed so as to simulate reforms to in-work benefits,

specifically the introduction of the new working families tax credit. This has required a detailed simulation model of labour supply responses by couples and by lone parents. Similarly, the corporate tax model has been used to examine alternative approaches to implementing a neutral business tax in the presence of uncertainty and bankruptcy risk.

The work at the Centre over the past year has focused on a number of key areas of policy research. The work on evaluating the labour market impact of tax and benefit reforms and the work on the impact of corporate tax reform has already been mentioned. We have also spent a great deal of effort in producing a statistical picture of asset ownership and the distribution of wealth in the UK. This is required for a number of topical policies — assessing the likely impact of tax-advantaged savings vehicles and the adequacy of savings for old age among poorer members of society, to name but two that our research has emphasised. We have also worked on re-evaluating the RPI as a measure of the cost of living for different household types and assessing the extent of biases that result from the introduction of new goods and changes in the quality of existing goods. Both of these areas of research highlight the importance we place on not only documenting changes in inequality and poverty but also understanding why they have occurred.

This interest in the determinants of inequality and poverty also motivates our move to increase research efforts on the evaluation of education and training. In particular, we have estimated robust measures of the private and social returns across different types of education and training schemes and for different types of individuals. Many recent labour market policies have emphasised the need for increasing skills and productivity, especially for individuals in low-income households. Our research on education and training has been used extensively in informing this debate.

Alongside our research on human capital investments comes the work we have done on R&D and innovation — most importantly perhaps the work on the effectiveness of R&D tax credits and the relationship between the structure of firms and their innovative activities. The work on R&D tax credits used panel data on R&D spending and tax changes for nine countries across 16 years. Our recent access to detailed firm-level Census of Production data opens up many new avenues for this research on firm productivity and also new areas for international comparison using similar large-plant-level panel data.

Our research has also looked at local government finance and health expenditure allocations. It has researched public expenditure more generally. In the months before each Budget in the UK, the Centre produces an extensive review of possible options open to the government for policy reform with an overall assessment of the state of the public finances and the implications of policy reforms. This ‘Green Budget’ attracts a large amount of media and policy attention and is one way that our detailed policy research is used to inform the public debate.

The generation of new areas of research, together with the many other research developments that are documented in this report, is due largely to the exceptional research environment created at IFS by the research staff, Research Fellows, Research Associates and visitors. Our aim is to keep the Centre open to new ideas and new people who can help develop our research. We hope this is reflected in this report and that the report will provide an idea of the level and extent of research activities at the ESRC Centre.

Richard Blundell and Costas Meghir

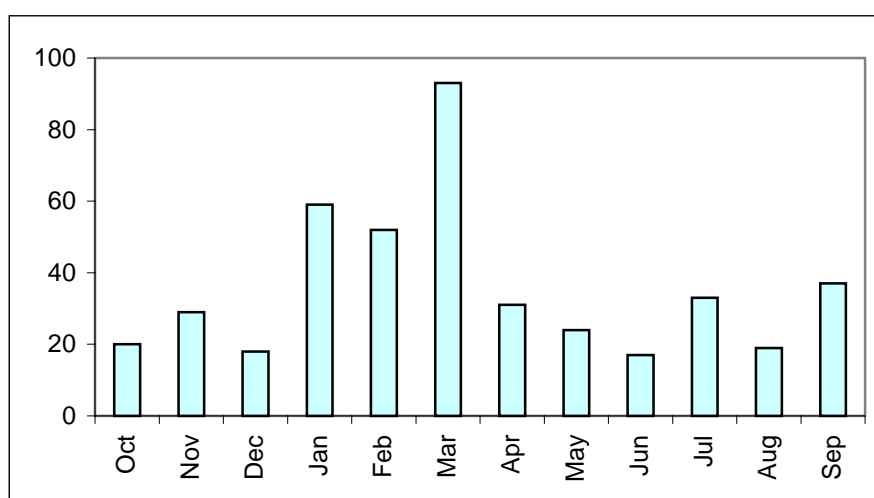
2. Communication and Collaboration

INFORMING AND INFLUENCING PUBLIC DEBATE

One of IFS's remits is to inform public debate on economic issues. An essential aspect of this is communication with journalists in the printed and broadcast media. At the time of the Pre-Budget Report in the autumn of 1998 and the Budget itself this year, IFS researchers were much in demand to comment on and explain many policy proposals as well as the state of the public finances and related implications for spending. Our 'Green Budget' generated considerable debate in its own right in the run-up to the Budget. For journalists, IFS research and staff are a source of impartial and rigorous economic analysis, which they cannot easily find elsewhere.

During the past year, we have paid particular attention to the debates on, for instance, pension policy reform and the tax treatment of savings, and the government's measures to make work pay for families and young people and to improve productivity in UK businesses. The graph shows the number of articles in the press and broadcast appearances by month. Activity peaked before and at the time of the Budget.

IFS Appearances in the Media



As well as responding to direct enquiries from the public and the media, IFS organises a range of events at which policymakers, members of the business community and journalists are able to meet IFS researchers from across the Centre's activities. These include regular informal lunch gatherings, conferences to launch policy-related research reports, and regular Director's Lunches for corporate supporters of IFS work. Each of these presents the Centre with an opportunity to introduce its work generally and to put civil servants, journalists and members of the business community in touch with researchers working in areas of particular interest to them. In addition, our biannual IFS newsletter continues to include an outline of current Centre news and work in progress.

Researchers from IFS are involved in encouraging an appreciation of the importance of economics for public policy issues amongst students. Over the last year, we have continued our lecture series on public policy at Oxford and Cambridge Universities, with seminars on such topics as income distribution, public spending and the future of pension provision. In

addition, researchers regularly contribute to a 'Fiscal Policy' section of *Economic Review* magazine, widely read by sixth-formers. Our new Virtual Economy website is also specifically aimed at sixth-form and undergraduate students, allowing them to simulate micro- and macro-economic effects of changes to tax and benefit policy.

INFORMING AND INFLUENCING ACADEMIC DEBATE

The Centre continues to develop links with other academics working in similar areas — both in the UK and internationally. Through discussion of ideas, dissemination of Centre research output to an academic audience and joint research projects in areas of common interest, the Centre ensures it is at the centre of the academic debate. To this end, the Centre has developed its own network of Research Associates at academic institutions both in the UK and internationally. Research Associates play a vital role in fostering academic debate at the Centre. As well as working directly with researchers at the Centre, they contribute greatly to the flow of ideas by presenting work they have done and discussing research projects done at IFS.

International academic links are further strengthened by the participation of IFS researchers in Europe-wide research networks. Two particularly active networks during this period were the Targeted Socio-Economic Research (TSER) programme for research into innovation, R&D and productivity co-ordinated by John Van Reenen at IFS. This brings together researchers from 11 academic institutions in the UK, Germany, Greece, the Netherlands, France, Spain and Italy. It features six main areas of research: job creation, financial markets, wage structure and human capital, productivity and spillovers, competition policy and policy evaluation. The European Commission also funds the Training and Mobility of Researchers (TMR) programme into household and individual financial decision-making. Co-ordinated by CentER in Tilburg, the project brings together researchers from IFS, PROMETEIA (Italy), EXEC, HUB (Germany), DELTA-INRA (France) and the universities of Venice, Mannheim and Salerno. The main research topics include analysis of motives for saving, portfolio choice, diversification and taxes, and experimental work on time-preference and attitudes towards risk.

In December 1998, the Centre organised a two-day conference around the new *Handbook of Econometrics* being edited by James Heckman (Chicago) and Ed Leamer (UCLA). As a number of the contributors to the handbook are Centre researchers or associates, it provided a high-level meeting to discuss new research ideas. Apart from the editors and Centre contributors, the group included John Rust (Yale), Manuel Arellano (CEMFI), Robert Moffitt (Johns Hopkins), Gerard van den Berg (Amsterdam), Tom MaCurdy (Stanford) and John Whalley (Warwick).

In May 1999, the Centre hosted an international meeting on inequality funded by the MacArthur Foundation Network on the Effects of Inequality on Economic Performance, directed by Dr Pranab Bardhan (Berkeley). This meeting, co-organised with Philippe Aghion (UCL), involved many Centre participants as well as Joe Stiglitz (World Bank), Thomas Picketty (CEPREMAP), Abjit Banajee (MIT) and Michael Kremer (Harvard).

As part of the broader research agenda in health economics, the Centre ran a seminar series which focused on the microeconomic and econometric modelling of health-related issues. The seminar series attracted a wide UK audience from universities, independent research institutes, government departments and industry to hear presentations by leading health economists.

The Public Economics Workgroup, a joint Centre/University of Warwick initiative now in its fifth year, has aimed to stimulate greater research collaboration among UK academics by bringing together a group of leading researchers in public economics for twice-termly workshops including seminar presentations and informal discussion of current research. These are attended by a core group of around 40 academics. In addition, increasing efforts have been made to involve younger researchers and to draw in researchers from institutes where there may be few others in the field. In April, a two-day seminar was held at the University of Warwick which attracted a large number of overseas participants. The Workgroup will continue over the two years, continuing to be jointly run with the University of Warwick.

The Centre continues to employ a number of Research Fellows from academic and research institutes around the country who are directly involved in initiating and directing research at the Centre. Research Fellow Orazio Attanasio co-organises a consumption workshop at the NBER Summer Institute. Such activities strengthen our already close ties with researchers at the NBER and further enhance our links with academics in North America.

THE IFS WEBSITE

The Centre is always looking for new ways to disseminate its research to the widest possible range of people. Ever-increasing internet use across many sectors makes this an important medium for us. We continue to provide a valuable service to the academic community by putting papers and details of our research on the site, along with contact details for the relevant IFS staff, and by hosting sites for research networks such as the European Network on Innovation, R&D and Productivity and the ESRC-funded Public Economics Workgroup. We publish copies of all our press releases, allowing the media easy access to facts about our work, and we provide concise comprehensible information in a variety of formats, which can be used by everyone from sixth-form students to policymakers.

This year, Virtual Economy, an educational site for sixth-formers and undergraduates, was launched by IFS and BizEd. BizEd works with teachers and lecturers to create materials that support many aspects of the business studies and economics curricula, and some of these have been incorporated into an interactive site where students have access to information and worksheets on economic theories, case studies, economic history and government policies. The central feature of the site is a model written by IFS researchers which simulates the effect of changes to the tax and benefit system on the economy and on a selection of example family units. After running the model, it is possible for users to download the results into a spreadsheet.

In the last Centre report, for 1996–97, we wrote that our website needed to be redesigned to accommodate the growing volume of information contained there in an easily navigable format. Since then, we have given the site a more up-to-date appearance and have introduced standard navigation bars so that visitors can find information on all research areas more easily. We are continually reviewing the site's design to keep pace with the type and quantity of information available there. It is now possible to download free of charge acrobat files of all our recent and current Working Papers, and to read summaries of outputs and ongoing work in all research areas.

Recently, we have started to produce a series of policy-related Briefing Notes, which we plan to publish free online but possibly not in book form, to facilitate a fast response to current

policy debate. The Briefing Notes will provide a concise analysis of the relevant issues, which should be useful for journalists and civil servants, amongst others.

Increasingly, books and documents can be found on the internet, either free or downloadable for a charge. With this in mind, we intend to put our *Green Budget* up on the internet on its publication in January next year. Although we shall still be selling print copies, there will be no charge for accessing the document online, in line with similar Budget documents produced by companies such as Deloitte and Touche and with the Treasury's own Budget publication. We shall be able to use this as a test case when we inevitably start to think about the process of putting all our publications online in their entirety. The IFS journal, *Fiscal Studies*, will be going online on the academic journals site, Ingenta, from the first issue of next year, allowing free access only to existing academic subscribers and a pay-per-view arrangement for anyone else who wants to read a particular article.

3. Research Infrastructure: Data, Simulation Models and Training

DATA

Over the last year, IFS has continued to use core funding from the Centre to build on its wealth of experience over a wide range of microeconomic datasets. As well as updating existing datasets such as the Family Expenditure Survey and Family Resources Survey, we have also set up a number of new datasets such as the 1970 British Cohort Study panel and the Youth Cohort Study panels. This work in setting up datasets greatly facilitates ongoing research at the Centre itself, as well as acting as a resource for other users. We review below some of our most important datasets and developments over the last year.

Family Expenditure Survey (FES)

The Family Expenditure Survey remains the primary source of UK data on household incomes and expenditures. Though its sample size can no longer compete with that of some newer surveys, the FES provides a consistent annual cross-section of UK households from 1961 to 1997–98. This makes it an unrivalled source of information on demographic, social and economic changes that have occurred over the last 37 years. At IFS, we devote considerable resources to making the FES data consistent and accessible across different years of data. Recent FES data have already been used at IFS in the analysis of the effects of tax changes on policy. The expenditure data available in the FES have also been used in a number of other research projects, including analysis of potential sources of bias in the UK's retail price index.

Contacts: Jayne Taylor and Zoë Smith

Family Resources Survey (FRS)

The first four years (1994–95 to 1997–98) of complete data from the Family Resources Survey, a large-scale household survey conducted by the Department of Social Security, are now available at IFS. The income data collected by the FRS are more detailed than those in the FES, and information is collected on a much larger number of households — around 25,000 compared with about 7,000 households in a typical year of FES data. FRS data have been used at the Centre for work on the income distribution. With additional complementary funding by government departments, the FRS has been used to verify and refine the government's income distribution statistics. In addition, data from the FRS have been pivotal in providing evidence on recent trends in income inequality and in analysing the labour market impact of the new working families tax credit.

Contact: Jayne Taylor

Labour Force Survey (LFS)

Since 1992, the Labour Force Survey has operated as a rolling panel where individuals are interviewed for five consecutive quarters, collecting a wide range of information on wages, employment and other aspects of the labour market both in and out of work. IFS now has LFS data from Spring 1992 to Spring 1999 set up, as well as the annual LFS from 1991 back to 1975. We are currently in the process of setting up this large dataset in an innovative database format in which it is hoped to play a major role in our research on wages, job search, training and other labour market issues in the 1990s.

Contact: Howard Reed

British Household Panel Survey (BHPS)

The British Household Panel Survey continues to form the main source of annual panel data in the UK. Data from the first seven waves, covering 1991 to 1997, are currently available to researchers at the Centre. The main interest to date in the BHPS has revolved around the information on labour market histories. We have created a derived dataset that simplifies the complex structure in the original dataset. We are in the process of comparing this dataset both with the simplified data provided with the BHPS and with the datasets produced by researchers at other institutions.

Contact: Julian McCrae

National Child Development Survey (NCDS) and 1970 British Cohort Study (BCS70)

The National Child Development Survey continues to provide an invaluable source of information on a panel of all individuals born in the UK during one week in 1958. IFS researchers have made use of the survey in a wide range of research topics including inter-generational mobility, education and training, and the links between income and health. A very similar study of individuals born 12 years later — the 1970 British Cohort Study — has also been set up. Both of these cohorts have been re-interviewed in 1999 and future work at the Centre will concentrate on comparing the outcomes of these two cohorts once these new data become available and are set up.

Contact: Lorraine Dearden

British Social Attitudes Survey (BSAS)

The British Social Attitudes Survey is an annual representative survey of roughly 3,000 households which carries information on attitudes towards a wide range of economic, social and political issues, together with some classificatory material. The Centre has now set up BSAS data from 1983 through to 1996. Recent use of these data includes an analysis of the impact of having private health insurance on support for public health insurance.

Contact: Carl Emmerson

Youth Cohort Study (YCS)

The Youth Cohort Study is a series of longitudinal surveys of young people just over school-leaving age in England and Wales. Starting in 1985, seven cohorts of individuals have been surveyed, each containing between 8,000 and 24,000 people. The survey takes place in the spring after individuals leave compulsory education and in the two years that follow. Due to its unique structure, the YCS data allow us to monitor closely the choices made by young people aged 16–19 about their education, training and employment year by year, while also providing detailed information about their qualifications, background and past experiences. Current work using the YCS will enable us to gain a better understanding of what determines how these choices are made and in particular to look at the potential impact of government policies on participation in both further and higher education.

Contact: Christine Frayne

Consumer Expenditure Survey (CEX)

The Consumer Expenditure Survey is a dataset from the US which is similar in many ways to the UK FES. The main difference is that, in the CEX, households are interviewed over the course of four quarters, thus introducing a panel aspect to the data. This is extremely useful when looking at economic behaviour concerning, for example, the purchase of durable goods, for which timing is a central concern.

Contact: Orazio Attanasio

Financial Research Survey (NOP-FRS)

The Financial Research Survey is an ongoing survey carried out by NOP Research Group which collects information on individuals' wealth. Nearly 5,000 individuals are interviewed

each month and asked detailed questions about which financial assets they have and how much wealth (in bands) they have in each asset. The survey also collects demographic information and some data on incomes as well as summary information on other financial products, such as pensions, mortgages and insurance. Recent research at IFS has used FRS data from January 1997 to June 1998 to carry out a detailed analysis of wealth holding in the UK. Analysis of the 1999 data is clearly a priority for further research in the light of the replacement of TESSAs and PEPs with ISAs, since they are the first available detailed information on this episode.

Contacts: James Banks and Sarah Tanner

Retirement Survey (RS)

The Retirement Survey is the first large-scale panel dataset in the UK to focus on individuals around the time of retirement. Two waves of data were collected on a sample of individuals born between 1919 and 1933. The first wave of the survey was conducted between November 1988 and January 1989 and comprised 3,543 'key respondents' (aged 55–69). About two-thirds of the original sample were re-interviewed in 1994. In this interval, 11 per cent of respondents disappeared due to mortality; the residual attrition is a combination of non-response and (perhaps) unreported mortality. The survey contains a rich set of demographic, economic and health variables on individuals and their spouses in both waves as well as employment history information and private pension history information.

Contact: Sarah Tanner

Local government datasets

We have an extensive panel dataset that combines information on local authority tax and spending decisions with a wide range of locally varying and time-varying information. This includes information on local political and electoral developments, demographic and socio-economic indicators and some indicators of the quality of local service provision. This dataset has already been used to examine local spending decisions under different regimes of direct central control over council spending levels. These data will be used further in future work looking at other political economy issues.

Contact: Carl Emmerson

Other household data

Over the last year, we have also developed a range of additional datasets such as the New Deal dataset and the Programme of Research into Low-Income Families (PRILIF) dataset. We continue to make extensive use of other datasets already available at IFS, such as the General Household Survey (GHS). Over the next year, the Centre plans to continue to develop and enhance these existing datasets, and to investigate the use of new and additional data sources where this will assist the development of new avenues of empirical research.

Contacts: Gillian Paull and Lorraine Dearden

Corporate datasets

New sources of data on corporate behaviour have also been acquired over the past year for use at the Centre. With funding from HM Treasury, new data on beneficial share ownership were acquired for a sample of about 200 firms between 1985 and 1992. With data on around 60,000 individual shareholdings, this source of information can be used in investigating the relationship between institutional share ownership and company dividend behaviour.

A major data collection project undertaken during the year in conjunction with Ernst & Young, Price Waterhouse and the Institute of Chartered Accountants in England and Wales has built up a crucial dataset describing the corporate tax systems in 10 OECD countries over the period 1980 to 1995. This dataset includes information on the corporate income, top personal income and capital gains tax rates and definitions of the tax base for a range of

tangible and intangible assets and foreign source income. This information has been used to compute marginal and average effective tax rates for domestic and cross-border investments.

Contact: Lucy Chennells

SOFTWARE AND POLICY SIMULATION MODELS

Much of the modelling of consumer behaviour, labour supply behaviour and company investment behaviour draws heavily on the micro-simulation models that have been developed with the aid of ESRC core funding over a number of years. The work of maintaining and upgrading models using the very latest data is time-consuming but essential to the more technical work that the Centre undertakes.

Corporation Tax Model

This is a micro-simulation model of the UK corporate tax system, recently rewritten from Fortran into Modula-2. It is based on individual-level company accounts data and allows the simulation of alternative company tax regimes. The model remains a key input to our company research.

Contact: Lucy Chennells

DPD (Dynamic Panel Data)

Written in Gauss, DPD is a user-friendly program for the estimation of dynamic models using panel data. It is used widely by academic researchers and covers a range of standard estimators for panel data as well as new Generalised Methods of Moments estimators developed at the Centre. It can input panel data of widely varying structures and is particularly designed for use with unbalanced company panel data in which both the number of firms in any given year and the number of years for any given firm are allowed to differ.

Contact: Steve Bond

NP-REG (Non-Parametric Regression)

Written in Gauss, NP-REG is a menu-driven computer package incorporating a range of non-parametric techniques, from basic Kernel density methods to more complex multivariate regression techniques. The package exploits procedures available within Gauss to produce a graphical display of non-parametric regression results. In the last year, NP-REG has been developed to include procedures for the estimation of partially linear and shape-invariant semi-parametric regression models.

Contact: Alan Duncan

SPAIN-III (Simulation Program for the Analysis of Incentives)

SPAIN is a menu-driven computer package, written in Gauss and designed to simulate labour supply responses to changes to the tax and benefit system. The package uses the tax and benefit model to simulate reforms to the tax system and summarises the behavioural impact of the reform both in aggregate and with reference to specific households. The last year has seen significant developments in our capability to simulate labour market responses to tax and welfare reform. SPAIN can now use discrete models of household labour supply to simulate the joint responses of all household members. Quadrature methods are now used to integrate out wage rates for non-working households. Stochastic simulation methods are used to generate empirical confidence bands for simulated labour market responses. The latest version of SPAIN has been applied to model how the introduction of the new working families tax credit might affect work incentives.

Contact: Alan Duncan

SPIT (Simulation Program for Indirect Taxation)

SPIT is a microcomputer-based simulation program, written in Fortran, to analyse the welfare and revenue consequences of changes to indirect taxes. The simulations are based on estimation of demand systems using 17 years of FES data. The demand equations are currently being re-estimated, and are expected to be up and running in the early part of next year.

Contact: James Banks

TAXBEN2 (Tax and Benefit Model)

This is a micro-simulation model of the UK personal tax and social security systems. It can currently operate on data from the Family Expenditure Survey (1984–97/8 data) and the Family Resources Survey (1994/5–97/8 data). During this year, the model has been converted to Pascal and updated to include a Windows-based graphical user interface. We are in the process of extending the model backward to cover the years 1978–83. The extended model will allow the analysis of changes in labour supply and wage structures over a 20-year period. As well as its constant use for the assessment of the distributional consequences of government tax and benefit plans, in the past year it has been used as an integral part of major Centre projects. Most importantly, the model has been used in the work on the labour market impact of recent tax and benefit reforms, including the working families tax credit. To do this, the model has been extended to allow simulated childcare expenditures, based on information in the Family Resources Survey.

Contact: Julian McCrae

RESEARCH TRAINING

The Centre provides a unique training for young economists, providing a breadth of experience matched in few other environments. Researchers are expected to work on a range of topics, bringing academic rigour to public policy debate and policy relevance to scientific research. The Centre instils appreciation of the latest microeconomic and microeconomic techniques, coupled with an understanding of institutional reality and current policy debates. Researchers come in regular contact with the range of the Centre's users: academics at the frontier of our research programme; policymakers, including civil servants and politicians; the business community, including industry and tax practitioners; and the media.

A wide range of presentational skills are developed. Researchers are encouraged to write up their results for a wide range of different audiences, including publication in top academic journals, more accessible policy papers for IFS's own journal, *Fiscal Studies*, and 'in-house' publications such as the IFS Commentary series, as well as the national media. Oral skills, too, are developed across a broad range: academic seminars, conference speaking and summarising research results in 'sound bites' for the broadcast media. Researchers are also responsible for all dissemination of their research, including writing their own press releases. As well as 'on-the-job' training, staff are encouraged to attend ESRC Media Training and Presentation to Policy Makers courses.

Computing is very important to Centre research. Staff are encouraged to develop a whole range of computer skills necessary for the analysis of micro-datasets and for the preparation and presentation of written and graphical results. New researchers are trained in the effective use of microcomputer networks, programming languages and statistical packages (such as Gauss and STATA), and word-processing, spreadsheets and graphics packages.

The management and supervisory structure is based around three research programmes. Each full-time researcher is allocated to a programme, managed by one of the Programme Directors. Members of the Centre management team, Research Fellows and Senior Research Economists often supervise researchers on individual projects.

The Centre offers an effective training to individuals ranging from undergraduate students to those with postgraduate degrees, giving them a broad experience of rigorous applied microeconomics and an appreciation of policy issues. Research training is organised at four levels.

- Full-time Research Economists are recruited after completing their degree, often with some other work experience. Research Economists generally work in teams and under supervision on two or three projects a year. By doing so, they learn the skills and techniques associated with conducting and disseminating economic research.
- Research Economists without a postgraduate qualification are encouraged to study part-time for an MSc, whilst those arriving already with a postgraduate qualification have the opportunity to study part-time for a Ph.D. This year, Carl Emmerson successfully completed the Birkbeck M.Sc. with distinction. Five members of staff are currently studying part-time for a Ph.D. James Banks and Rachel Griffith were awarded their Ph.D.s during the year.
- Summer internships are offered to undergraduates, who typically carry out short projects, usually for six weeks. This year, two students were recruited to work on projects that looked at changes in the aggregate UK labour market and changes in the tax and benefit system over the last 25 years.
- Each year, IFS offers a research scholarship in applied microeconomics. Scholars are based at IFS, giving them access to supervision and to the Centre's research facilities, and enrolled at University College London on the PhD programme. This year, there have been three Research Scholars — Monica Paiella, Monica Dias and Barbara Sianesi. This coming year, we have a new PhD scholar — Emla Fitzsimons — who will work on child labour supply. We also have a TMR scholar — Susann Rohwedder — who is working on part of the European-funded project on pensions and savings. Hamish Low, a research scholar from 1995 to 1998, was awarded his Ph.D. during the year and has taken up an academic appointment in the Economics Department of the University of Cambridge.

4. Major Research Findings

In this section, we present a detailed analysis of the findings of the research conducted across the whole range of the Centre's activities during the past year. As well as a summary of developments, we detail a few selected publications in each area and give contact names of Centre researchers working in each field.

HOUSEHOLD SAVING BEHAVIOUR

In the past, one of the main obstacles to research into household saving behaviour has been a lack of good data. Government surveys contain a lot of information on households' income and spending, but far less information on their wealth holdings. This year, we have been able to use a privately collected source of information — the Financial Research Survey collected by NOP Research Group — to look in detail at how much wealth people have. In fact, most people hold very little financial wealth — half the population have £750 or less each. The majority of wealth is held in housing and pensions, but low levels of financial wealth matter since money in savings accounts or stocks and shares provides people with resources to cushion unanticipated changes in their income or spending needs. Levels of wealth and the probability of holding different assets are strongly linked to people's age, income and education. One in ten households has no assets at all. Of course, not all these households will be permanently financially excluded. But many are elderly and, with almost no opportunity for wealth accumulation in the future, are likely to be dependent on means-tested benefits. Also, many of those without any wealth are among the poorest in terms of income. Research has also looked at how holdings of different types of wealth have changed over the last 20 years. During the 1980s, ownership of key assets — particularly stocks and shares, housing and pensions — became much more widespread, largely as a result of particular government policies. But at the bottom of the wealth distribution, there was an increase in the number of households, particularly younger households, with no wealth at all.

Centre researchers are currently involved in two international comparative projects on household saving. One project focuses on levels of wealth ownership and portfolio composition in different countries, including the UK, the US, Italy, the Netherlands and Germany, as well as on the portfolios of particular groups of the population, including the elderly and the super-rich. The second is a European comparative study of life-cycle saving profiles.

Banks, J. and Tanner, S. (1999), *Household Saving in the UK*, London: IFS.

Johnson, P. and Tanner, S. (1998), 'Ownership and the distribution of wealth', *Political Quarterly*, vol. 69, no. 4, pp. 365–74.

Tanner, S. (1999), 'Savings account', *Economic Review*, vol. 16, no. 3, pp. 22–3.

Contacts: James Banks and Sarah Tanner

CONSUMPTION GROWTH AND PRECAUTIONARY SAVING

Research has continued to evaluate the performance and predictions of consumption growth models based on the life-cycle model with precautionary saving. Amongst other issues, we

have looked at the empirical failure of the consumption asset pricing model. Recent studies have explored the possibility that limited participation in asset markets, and the stock market in particular, might explain the lack of correspondence between the sample moments of the intertemporal marginal rate of substitution and asset returns. Using UK data over the period, we show that the consumption growth of ‘likely’ shareholders is more volatile than that of ‘likely’ non-shareholders, and more highly correlated with excess returns to shares. In particular, one cannot reject the predictions of the consumption CAPM for the group of households predicted to own both safe and risky assets.

We continue to develop and use simulation methods as an addition to the empirical analysis of consumption growth models. This year, Centre scholar Hamish Low completed his Ph.D. thesis using simulation techniques to examine the effects of incorporating labour supply choices into intertemporal consumption decisions under uncertainty. The research shows that uncertainty leads to increased labour supply and reduced consumption when young, with resulting increases in saving. When labour supply is flexible, consumption is smoother than when labour supply is fixed, as individuals can save through increased labour supply, thus reducing the need to give up consumption. The analysis also shows how secondary sources of income can insure against shocks to the primary earner’s income, thus reducing the need for precautionary saving, and how, in the particular case of unemployment benefit income, there can be important interaction between saving choices and secondary income sources.

Attanasio, O., Banks, J., Meghir, C. and Weber, G. (1999), ‘Humps and bumps in lifetime consumption’, *Journal of Business and Economic Statistics*, vol. 17, no. 1, pp. 22–35.

Attanasio, O., Banks, J. and Tanner, S. (1998), ‘Asset holding and consumption volatility’, NBER, Working Paper no. 6567.

Low, H. (1999), ‘Simulation methods and economic analysis’, Ph.D. thesis, University College London.

Contacts: James Banks and Orazio Attanasio

PRICE INDICES AND THE COST OF LIVING

This year, our work in this area continued to focus on sources of bias in official price indices relative to the true increase in the cost of living. Our research to date has considered three particular sources of bias: new goods bias, quality bias and substitution bias. These biases arise, respectively, because of changes in the range and the quality of goods available to consumers and because of consumers’ tendency to change their purchase patterns as relative prices change. During the year, a substantial amount of our collected work in this area, co-funded by the Leverhulme Trust and the Bank of England, was drawn together in an IFS Report Series volume. The purpose of this report was twofold. Naturally, one aim was to quantify the extent of these different biases in the UK’s own official price index, the retail price index. Equally important was the method used in obtaining these numbers. Throughout, we tried to use methods that place as few assumptions as possible on the exact relationship between consumption and welfare, since such assumptions can have a strong effect on the final results. Quantifying the total bias caused by the introduction of new goods and quality change in existing goods would be a vast undertaking. We looked at one case for each area. For quality bias, for example, we looked at audio-visual goods and found that failure to allow for quality improvements could increase the annual rate of non-housing inflation between 1974 and 1996 from 8.05 per cent to 8.1 per cent — this may seem a small error but is only for one group of goods out of many that contribute to the calculation of the RPI. Total substitution bias is amenable to calculation, and we found that, between 1976 and 1997,

accounting for substitution bias could lower annual non-housing inflation from 6.43 per cent to 6.28 per cent.

Blow, L. and Crawford, I. (1999), *Cost-of-Living Indices and Revealed Preference*, London: IFS.

Blow, L. and Crawford, I. (1999), 'A non-parametric bound on substitution bias in the UK retail prices index', IFS, Working Paper no. 99/15.

Contacts: Laura Blow and Ian Crawford

CONSUMER DEMAND, INDIRECT TAXATION AND WELFARE

Work this year looked at the relationship between taxes on alcohol (beer, wines and spirits) and the revenue raised from these taxes. This source of revenue has been thought to be under serious threat from fraud, smuggling and, since the completion of the Single European Market at the end of 1992, unrestricted importation of duty-paid alcohol for personal consumption. Reducing the tax rate on alcohol can have two effects: the tax raised per unit sold is reduced, but more units may be sold as a result of the price reduction (assuming that it is passed on to consumers). The overall effect could go either way (tax revenues could rise or fall). Using data on around 120,000 households for the period 1979 to 1996, the research found that the way in which taxes affect domestic demand had not changed since the completion of the Single Market. Further, it was found that, for beer and wine, increasing taxes could still increase revenues (holding everything else constant); however, taxes on spirits (already the most heavily taxed form of alcohol) were found to be close to revenue-maximising.

Other research continued to look at whether, without making assumptions about precisely how consumers' preferences relate to their choices, we might be able to test the economic theory of consumer demand and use it to look at the effects that price changes have on consumers' welfare and to make predictions about how demands might respond to indirect tax changes. Progress was made on using the axioms of revealed preference to bound the welfare effects of a price change.

We also began work this year on the question of how social welfare might be measured. The typical approach is to make assumptions about how individual welfare relates to a number of economic and social variables and then to combine these individual welfare measures into an overall index. Instead, the approach we have taken is to work with the distributions of a number of demographic and economic factors directly, and to investigate conditions linking differences in these distributions with differences in the social welfare derived from them. These sorts of conditions provide a way of ranking distributions in terms of social welfare without the data requirements necessary for traditional aggregation nor specific assumptions on the precise way in which households convert these attributes into welfare. However, the conditions necessary for welfare rankings have proved difficult to establish empirically and they have lacked a statistical basis. We are, after all, interested in describing differences in the social welfare of a population yet we only ever have data on a sample. Work has therefore concentrated on deriving statistical tests of whether the differences we may find in our sample imply anything about differences in the populations of interest. So far, we have applied these to the joint distribution of equivalised real income and non-labour market time for a sample of UK households for the years 1975, 1980, 1985, 1990 and 1995. We have found a pattern of generally increasing social welfare over the period, despite increased inequality in real incomes and something of a polarisation in the distribution of hours of work (more hours of work concentrated in fewer households and an increased number of

households with zero hours of work). When we look in detail at these data by date-of-birth cohorts, we also find that most of these increases in welfare have been felt by households from the immediate post-war generation, and that younger households (those with mean adult date of birth after 1970) have experienced decreases in welfare in the early 1980s and in the early 1990s.

Blundell, R. W., Browning, M. and Crawford, I. (1999), 'Nonparametric Engel curves and revealed preference', IFS, mimeo.

Crawford, I. (1999), 'Nonparametric tests of stochastic dominance in bivariate distributions, with an application to UK data', IFS, mimeo.

Crawford, I., Smith, Z. and Tanner, S. (1999), 'Alcohol taxes, tax revenues and the Single European Market', *Fiscal Studies*, vol. 20, no. 3, pp. 287–304.

Contacts: James Banks and Ian Crawford

COMPANY TAXATION AND INTERNATIONAL CORPORATE TAX

We have analysed alternative approaches to implementing a neutral business tax in the presence of uncertainty and bankruptcy risk. The basic distinction made is between a tax on the economic rents generated by a firm and a tax on the economic rents that accrue to the firm's owners. The latter treats debt and equity differently, giving the firm an allowance for interest actually paid. The former treats debt and equity symmetrically, giving an allowance only for an imputed cost of borrowing. This mirrors the distinction between S-based and R-based taxes in the earlier literature on cash-flow corporation taxes. We conclude that explicit interest deductibility provisions complicate the rules needed to ensure neutrality in the event that bankruptcy occurs and introduce opportunities for tax avoidance where borrowers and lenders can collude to reduce their joint tax liabilities.

As highlighted in earlier research at the Centre, there is a clear trend in corporate income taxation towards lower tax rates and broader tax bases. We discuss the extent to which this trend is consistent with the increasing share of investment accounted for by geographically mobile multinational corporations. Lower tax rates and broader tax bases have tended to redistribute corporate tax payments away from the most profitable firms and onto less profitable firms. This favours multinational firms, which tend to be among the more profitable. Multinationals may also be attracted to low-tax-rate locations if they can benefit from income shifting. At least if tax yields are kept constant, this analysis suggests that comprehensive business income tax (CBIT) proposals, which broaden the tax base and allow tax rates to be cut further, may be more likely to be adopted than allowance for corporate equity (ACE) proposals, which do the opposite.

Bond, S. R., 'Levelling up or levelling down? Some reflections on the ACE and CBIT proposals, and the future of the corporate tax base', in S. Cnossen (ed.), *Taxing Capital Income in the European Union: Issues and Options for Reform*, Oxford: Oxford University Press, forthcoming.

Bond, S. R. and Devereux, M. P. (1999), 'Generalised R-based and S-based taxes under uncertainty', IFS, Working Paper no. 99/9.

Contacts: Steve Bond and Lucy Chennells

THE LOCATION DECISION OF THE FIRM

Recently, the data underlying the Annual Census of Production has been made available to academic economists in the UK. This Annual Respondents Database (ARD) provides information on production activity in the UK at the plant level. The Centre has been one of the first users of these data. Griffith (1999) provides some preliminary description of the data, discusses a few of their advantages and some of the problems associated with using them and provides a brief review of current empirical work using the ARD data. These data allow us to investigate several issues that we have not previously been able to address with more aggregated firm- or industry-level data. For our research on location, a key advantage of these data is that it is possible to identify both the country of residence of the ultimate owner of the establishment and the UK region in which the establishment is located.

This database, developed at the Centre, is being used in a research project supported by the Leverhulme Trust looking at the location of production establishments within the UK. There has been much recent academic and policy interest in the issue of spatial clustering of economic activity, with most attention paid to the geographic concentration of high-tech industries. Work by Devereux, Griffith and Simpson (1999) describes patterns of geographic and industrial concentration in UK production industries at the four-digit industry level. Several measures are used, including a new simple and intuitive measure of agglomeration. Conditioning on industrial concentration, many of the most geographically concentrated industries are not high-tech industries. We find that the most agglomerated industries are relatively low-tech and that they have lower entry and exit rates and higher survival rates as well as lower job creation and job destruction rates. Within industries, we find that the most concentrated region has, on average, lower entry and exit rates but higher job creation rates and lower job destruction rates.

Devereux, M. P., Griffith, R. and Simpson, H. (1999), 'The geographic distribution of production activity in the UK', IFS, Working Paper no. 99/26.

Griffith, R. (1999), 'Using the ARD establishment level data to look at foreign ownership and productivity in the UK', *Economic Journal*, vol. 109, pp. F416–F442.

Contacts: Rachel Griffith and Helen Simpson

COMPANY INVESTMENT AND FINANCIAL BEHAVIOUR

With co-funding from the Anglo-German Foundation, we have undertaken a detailed empirical study of investment and R&D spending by large manufacturing companies in Britain and Germany. We compare the behaviour of R&D-performing firms between the two countries, as well as comparing R&D performers with non-R&D performers within both countries. The main difference we find is that investment spending by non-R&D-performing firms in Britain is sensitive to fluctuations in cash flow, whilst investment spending by non-R&D-performing firms in Germany is not sensitive to fluctuations in cash flow. Neither investment nor R&D spending is sensitive to cash flow for firms engaged in R&D, in either country. We interpret these findings as being consistent with the view that financing constraints are important for large firms in Britain but not for large firms in Germany. However, the British firms that engage in R&D are a self-selected group with 'deep pockets', for which financing constraints are less likely to be binding.

We have examined the impact of fiscal incentives on the level of R&D investment. An econometric model of R&D investment is estimated using a panel of data on R&D spending

and tax changes in nine countries over 16 years. We find evidence that tax incentives are effective in increasing R&D intensity. This is true even after we allow for country-specific characteristics and world macro shocks. Additionally, there is some evidence that changes in R&D tax credits affect decisions over the international location of R&D, as suggested by models of tax competition.

Work in progress on company investment is investigating the relationship between investment spending and uncertainty. We construct a measure of uncertainty that varies across both firms and accounting periods by using the variance of daily share prices. Our econometric framework distinguishes between effects of uncertainty on the level of the firm's desired capital stock or capital-output ratio in the long run and effects of uncertainty on the firm's short-run investment dynamics or 'speed of adjustment' towards this long-run optimum. We find that an increase in uncertainty has a significant effect in slowing down the adjustment of investment to changes in fundamentals but no significant effect on the level of the capital stock in the long run. These findings are broadly consistent with models in which the firm faces non-convex costs of adjusting its capital stock and motivate further empirical testing of these models.

Other work in progress is investigating the use of a new data source on securities analysts' forecasts of future profits for individual firms to identify the Q model of investment. Conventional estimates of the Q model use share price data to construct a measure of Tobin's average Q; this variable typically has low explanatory power for investment, and the Q model is commonly rejected. We show that much better results are obtained if the firm's stock market valuation is replaced by an estimate of the present value of future profits constructed from the analysts' earnings forecasts. This suggests both that share prices contain a significant component that is unrelated to fluctuations in expectations of future profits and that this component of share price fluctuations is unrelated to the firm's investment. We discuss how these findings relate to different concepts of stock market efficiency.

Bloom, N., Bond, S. R. and Van Reenen, J. (1999), 'Uncertainty and investment: evidence from UK company panel data', IFS, mimeo.

Bloom, N., Griffith, R. and Van Reenen, J. (1999), 'Do R&D tax credits work? Evidence from an international panel of countries 1979-1994', IFS, Working Paper no. 99/8.

Bond, S. R. and Cummins, J. (1999), 'Noisy share prices and the Q model of investment', IFS, mimeo.

Bond, S. R., Harhoff, D. and Van Reenen, J. (1999), 'Investment, R&D and financial constraints in Britain and Germany', IFS, Working Paper no. 99/5.

Contacts: Nick Bloom and Steve Bond

ECONOMETRIC METHODS FOR PANEL DATA

We have extended our work on estimating dynamic panel data models from persistent series to consider estimation in the context of production functions. Both inputs (labour and capital) and output are shown to be highly persistent. First-differenced GMM (generalised methods of moments) estimators appear to give seriously biased estimates, both of autoregressive coefficients in time-series representations and, more importantly, of coefficients in the production function relation. Additional instruments implied by initial-condition restrictions appear to be both valid and informative in this context, and the extended GMM estimator gives much more reasonable parameter estimates.

These GMM estimators have further been shown to be equivalent to simple two-stage least squares projection estimators. The structure of the projection estimators makes it possible to obtain a very simple linear estimator in the autoregressive model imposing stronger initial-condition restrictions.

Non-linear moment conditions have been derived and estimated for dynamic linear panel data models with linear individual-specific effects in the mean and multiplicative individual effects in the conditional ARCH-type variance function.

We have continued developing estimation methods for panel data for models where the dependent variable is a non-negative integer count variable. A difficult problem in this case is to allow for firm-specific unobserved heterogeneity that is correlated with the explanatory variables, and some of the explanatory variables are weakly exogenous or endogenously determined. Moment conditions for these types of models have been examined and estimated by GMM. These methods have been applied to dynamic autoregressive models for count data. Further, we have obtained a consistent estimator of the parameters utilising pre-sample information on the dependent variable. All methods have been used to estimate the returns to R&D investment in terms of the number of patents obtained.

Blundell, R. W. and Bond, S. R. (1998), 'Initial conditions and moment restrictions in dynamic panel data models', *Journal of Econometrics*, vol. 87, pp. 115–43.

Blundell, R. W. and Bond, S. R. (1999), 'GMM estimation with persistent panel data: an application to production functions', IFS, Working Paper no. 99/4; forthcoming, *Econometric Reviews*.

Blundell, R. W., Griffith, R. and Windmeijer, F. (1999), 'Individual effects and dynamics in count data models', IFS, Working Paper no. 99/3.

Bond, S. R. and Windmeijer, F. (1999), 'Projection estimators for autoregressive panel data models', IFS, mimeo.

Meghir, C. and Windmeijer, F., 'Moment conditions for dynamic panel data models with multiplicative individual effects in the conditional variance', *Annales d'Economie et de Statistique*, vol. 55, forthcoming.

Windmeijer, F. (1999), 'Moment conditions for fixed effects count data models with endogenous regressors', IFS, mimeo.

Contacts: Steve Bond and Frank Windmeijer

INNOVATION AND PRODUCTIVITY

Centre research in the area of innovation has been developed internationally through the Innovation, R&D and Productivity Network. This ended in April with a major international conference in Brussels. A successor Network (GRIT), which has focused on the links between innovation, skills and inequality, has an active IFS involvement. Chennells and Van Reenen (1999) survey the evidence on the effects of technology on the labour market and conclude that there is very strong evidence that recent technologies have reduced the demand for less-skilled labour.

Econometric work has looked at what role foreign firms played in UK manufacturing industry productivity growth over the 1980s and 1990s. This work also exploits the ARD / Census of Production data developed at the Centre in a research project that is supported by the Leverhulme Trust. Griffith (1999) examines the growth in labour and total factor productivity in the UK motor vehicles industry and the factors that led to the period of rapid growth. The results of this work suggest that growth in output per worker came from two

sources — growth in incumbent firms and the entry of higher-productivity firms, with the former playing the larger role. Foreign-owned firms utilise different factor mixes, using more intermediate inputs and capital than domestic-owned plants, but do not appear to have higher total factor productivity.

Chennells, L. and Van Reenen, J. (1999), 'The effects of technical change on skills, wages and employment: a survey of the micro-econometric evidence', in J. Mairesse and N. Greenan (eds), *The Economic Impact of Information and Communications Technologies*, Cambridge, Mass.: MIT Press.

Griffith, R. (1999), 'Productivity and foreign ownership in the UK car industry', IFS, Working Paper no. 99/11.

Griffith, R. and Simpson, H. (1998), *Productivity and the Role of Government*, Commentary no. 73, London: IFS.

Contacts: Rachel Griffith and John Van Reenen

HEALTH

In order to identify demand for health resources, we have utilised the differences in average waiting times. The equilibrium waiting time framework is used, but the full equilibrium assumption is relaxed by selecting areas with low waiting times and estimating a (semi-) parametric selection model. Determinants of supply are used as instruments for the endogeneity of waiting times. We have estimated a model for the demand for acute services at the ward level in the UK, and contrasted our results, and their implications for health services allocations in the UK, with more standard allocation models.

A life-cycle model for the demand for health has been derived, implying empirical specifications that distinguish between permanent and transitory wage responses. Using panel data, dynamic health and health input demand equations are estimated. The findings are in line with the theoretical predictions and suggest negative transitory and positive permanent effects. The results emphasise the importance of analysing health-related behaviour in a dynamic life-cycle context.

Demand for certain types of healthcare services depends on decisions of both the individual and the healthcare provider. We have studied the conditions under which it is possible to separately identify the parameters driving the two decision processes using only data on the total demand. It is found that the frequently used hurdle models may not be adequate to describe this type of demand, especially when the assumption of a single illness spell per observation period is violated. A test for the single illness spell is developed and alternative modelling strategies are suggested, including a model that allows for correlated unobserved heterogeneity.

Blundell, R. W. and Windmeijer, F. (1999), 'Identifying demand for health resources using waiting times information', IFS, mimeo.

Dustmann, C. and Windmeijer, F. (1999), 'Wages and the demand for health: a life cycle analysis', IFS, Working Paper no. 99/21.

Santos Silva, J. M. C. and Windmeijer, F. (1999), 'Two-part multiple spell models for health care demand', IFS, Working Paper no. 99/2.

Contacts: Jayne Taylor and Frank Windmeijer

EDUCATION AND TRAINING

The Centre has continued its work in this field, further advancing its research on the private financial returns to education and work-related training.

Our work on the private financial returns to education in Britain used National Child Development Survey (NCDS) data to look at how reliable conventional ordinary least squares (OLS) estimates of the returns to qualifications are in datasets that do not have extensive background variables such as parents' education and early ability measures. Dearden (1999) concludes that these conventional estimates are probably fairly close to the true causal impact of qualifications on earnings as the effects of omitted ability bias are roughly cancelled out by measurement error bias and composition bias.

During the year, we also completed some comparative work with Sweden. This country makes an excellent comparison because it carried out important educational reforms in the 1950s, increasing the length of education by one year or, in certain cases, by two years. Importantly from an evaluation point of view, it organised the phasing-in of the reform as an experiment, with some municipalities operating under the old system and some under the new. Research has indicated that the allocation to the reform was not correlated with observed individual characteristics (ability etc.) and that we can conceive of the comparison between those in the reformed system and those outside as an experiment. Comparisons showed that the reform affected school attendance beyond the minimum school-leaving age and that the earnings of those who went through the reformed system were higher than the earnings of otherwise similar individuals who did not. The research also showed that the returns to schooling can be seriously biased upwards if ability is ignored. However, given a set of rich observable ability indicators (such as early test scores), education can be taken as (conditionally) exogenous.

Our latest work on the private financial returns to work-related training explores the nature and extent of heterogeneity in the returns to different types of work-related training for different groups of individuals using NCDS data. In this work, we find considerable returns to private sector training, even when we control for family background and ability as measured at age seven. Quite importantly, we find that training with a qualification attached to it has returns in jobs subsequent to the one in which the training was provided. However, non-qualification (employer-provided) training has no returns with other employers. We also find that better school education is a passport for subsequent training. This may simply be a selection effect: people better at schooling are better trainees. However, it may also be the case that earlier education is a prerequisite for training and that potentially good trainees do not obtain training because they were financially constrained during their school years. Distinguishing these two interpretations is an important policy question.

Blundell, R. W., Dearden, L. and Meghir, C. (1999), 'Work-related training and earnings', ZEW Conference on Programme Evaluation, June.

Blundell, R. W., Dearden, L., Meghir, C. and Sianesi, B. (1999), 'Human capital investment: the returns from education and training to the individual, the firm and the economy', *Fiscal Studies*, vol. 20, no. 1, pp. 1–23.

Dearden, L. (1999), 'Qualifications and earnings in Britain: how reliable are conventional OLS estimates of the returns to education?', IFS, Working Paper no. 99/7.

Meghir, C. and Palme, M. (1999), 'Assessing the effect of schooling on earnings using a social experiment', IFS, Working Paper no. 99/10.

Contacts: Lorraine Dearden and Costas Meghir

LABOUR SUPPLY, AND TAX AND WELFARE POLICY

During this period, we have published a number of major papers that presented the methodology, developed at the Centre over the past few years, for evaluating the labour supply responses to tax policy reforms. This work showed how variation in past tax policy reforms, and exogenous changes in incomes and wages across education groups and cohorts, could be used to recover robust measures of labour supply responses to tax reforms. This work provides an important input into our simulation analysis of reforms described below. The main results of this work have now been awarded the Frisch Medal given by the Econometric Society for the best applied paper published in *Econometrica* in the last five years.

The impact of tax and welfare policies on labour supply can take many forms. A major new policy in the UK has been the introduction of the New Deal, including the New Deal for Young Persons, which is a programme aimed at helping young long-term unemployed into stable employment. The programme includes counselling and guidance to improve job search, the provision of education and training courses for very unskilled participants, and opportunities for work experience on an environmental task force, on a voluntary service or on some kind of subsidised employment. It was launched in April 1998 and the corresponding collection of data will provide a considerable amount of information on the labour market behaviour of young people.

The goal of work begun in the Centre in the past year is to evaluate the impact of the New Deal using two different strategies. The first approach builds on an *ex-ante* formulated model of the economy as a whole, using a human capital model with selection. The effectiveness of the programme depends on its ability to actually improve participants' skills, making them more competitive in the labour market and enabling them to keep a job upon termination of the subsidy. In such a situation, large programmes such as the New Deal are likely to have a wide impact on labour market conditions, indirectly affecting non-eligible workers. This calls for an overall evaluation of the effect of the programme, paying particular attention to displacement, substitution and price effects. The economy has been modelled and is presently being solved computationally.

The second approach relies on the data released as the programme is being applied to produce an *ex-post* evaluation. It aims to measure the impact of the programme on the unemployment experience and posterior labour market attachment of participants. A main step needed for this evaluation is the construction of the comparison group. The global characteristic of the programme makes it difficult to find an adequate group, and a careful choice is therefore required. The identification of the parameters of interest depends crucially on the assumption that the chosen comparison group is in no way affected by the simple existence of the programme. We are using the JUVOS database, both contemporaneously with the New Deal and at a previous similar point in the economic cycle. Preliminary analysis is being undertaken in order to describe the general patterns of the data, reveal the first estimates of the effect of the New Deal and justify the choice of the comparison group.

An additional major programme that the government has overhauled has been in-work benefits with the introduction of the working families tax credit to replace family credit (see IFS website for a summary of the results). The new system is significantly more generous, with an aim to improve its impact on the incentives to work. There are three main components in the reform. First, there is a major increase in the generosity of the initial credit. Second, a major new childcare support component has been introduced. Third, the rate at which the benefit is withdrawn as earnings increase has been reduced significantly. However, the interaction of the tax credit with housing allowances, available to low-income

families, has mitigated some of the positive incentive effects of the reform. Moreover, the incentive structures for married persons and for single people are quite different. At the Centre, we have initiated a major evaluation of this programme. We have found that the significant positive employment impact on single mothers is largely counteracted by the negative effects on the employment of married women with working husbands. Very small positive overall effects were found on male participation. However, the impact on households without earners is likely to be more positive. There, our work predicts not only the increase in employment by single mothers but also an increase in employment among men. The induced change in composition also has the effect of reducing exchequer costs, since the women going into work are now receiving less in benefits, while those dropping out are better off and are not eligible for benefits when not working.

Centre work has also focused on developing models of labour supply allowing for the fact that the household consists of more than one decision unit. In this more general collective framework, the decisions we observe are the outcome of bargaining and compromises within the household that take into account individual preferences and individual access to resources. Our empirical work aims to identify the individual labour supply responses and the way that marginal changes to earnings are shared between household members. Our results imply that, on the margin, individuals living in couples with no children keep any increase in earnings. However, female consumption tends to benefit more by increases in income from non-work sources.

In the international sphere, Centre work has also involved new research on the Swedish labour market. Using a very large and comprehensive new Swedish dataset, the aim is to evaluate the effects of Swedish active labour market programmes (ALMPs) on labour market outcomes of participants, in particular on their re-employment probability and, for those who have found a job, on subsequent individual employment duration. In general, programme evaluations try to estimate returns from participation, that are not due to the composition of the unemployed workers taking part in these programmes. An additional feature that is quite distinctive of the Swedish institutional system is that ALMPs are intricately tied in with the unemployment insurance system, since participation in such programmes qualifies for new periods of unemployment compensation. As individuals may select into the programmes with a view to renewing their benefits, it is important to take into account this link between programmes and the unemployment insurance system when trying to estimate the impact of programmes on the duration of unemployment and job attachment. A first step will be to use non-parametric matching techniques which assume selection on observables (such as the entitlement status of the individual). Subsequently, the sequence of choices facing individuals will be precisely modelled in order to estimate a structural model allowing for selection on unobservables as well.

Other work on labour supply in the last year has focused on how changes in the tax and benefit systems affect labour market participation. Centre funding has been important in exploring extensions to work carried out for the Joseph Rowntree Foundation on the impact of recent tax and benefit reforms on the number of people entering work.

Bell, B., Blundell, R. W. and Van Reenen, J. (1999), 'Getting the unemployed back to work: the role of wage subsidies', *International Tax and Public Finance*, vol. 6, pp. 339–60.

Blundell, R. W., Chiappori, P.-A., Magnac, T. and Meghir, C. (1998), 'Collective labour supply: heterogeneity and nonparticipation', IFS Working Paper no. 98/20.

Blundell, R. W., Duncan, A., McCrae, J. and Meghir, C. (1999), *The Labour Market Impact of the Working Families Tax Credit*, London: Bank of England.

Blundell, R. W., Duncan, A. and Meghir, C. (1998), 'Estimating labour supply responses using tax reforms', *Econometrica*, vol. 66, pp. 827–62. *Frisch Medal winner*.

Gregg, P., Johnson, P. and Reed, H. (1999), *Entering Work and the British Tax and Benefit System*, London: IFS.

Contacts: Richard Blundell, Monica Costa Dias, Alan Duncan, Costas Meghir, Howard Reed, Barbara Sianesi and John Van Reenen

PUBLIC POLICY: THE EFFECTS OF TAX AND BENEFIT POLICIES

With the advent of the Pre-Budget Report (PBR), interest in the effect of tax and benefit changes is now concentrated between the release of the PBR in November and the Budget Statement in the following March. Immediately after the 1998 PBR, IFS published a Commentary on one of its main proposals — the taxation of child benefit. This argued that, while such an option might initially appear attractive, there are administrative and distributional drawbacks to such a policy.

The main IFS pre-Budget Commentary was, as usual, the 'Green Budget'. This examined the introduction of a 10 per cent starting rate of income tax, further reforms to National Insurance, potential changes to the system of providing financial support to families with children and the possible reform of the housing benefit system. On the 10 per cent starting rate, we again pointed out the distributional effects of this policy and the complications introduced to the tax system by multiple marginal tax rates. We examined the potential reforms to National Insurance, aimed at removing any remaining discontinuities from the system and aligning the system more closely with income tax. We also considered the future of contributory benefits, given that National Insurance is virtually indistinguishable from income tax and the reductions in benefit entitlements that have occurred over the last two decades.

The support of children in low-income households has emerged as one of the current Chancellor's central themes. The 'Green Budget' presented the distributional effects of the changes to date, showing that while most groups had gained, there were significant numbers of lone-parent families losing, mainly as a result of the cuts to lone-parent benefits in 1998. We examined the potential for using the revenue generated by the abolition of the married couple's allowance to increase financial support to families with children. Finally, we considered the difficulty of potential reforms to housing benefit, given the wide variation in rent levels, particularly in the social rented sector. We proposed that limited reform to the in-work element of housing benefit would be possible in the short term, but larger-scale reform requires changes to the underlying distribution of social rents.

The other main area of work on tax and benefit policy has revolved around the working families tax credit (WFTC). In 1998, we published work on the distributional and administrative aspects of this new transfer system. During 1999, we have concentrated on the estimation of the potential labour market impact of the reform. This work has found that the WFTC is likely to have a positive, but relatively small, impact on the level of participation in the labour market.

As mentioned in our discussion of welfare-to-work programmes above, research has focused on the impact of the WFTC on labour supply for different groups of the population, particularly lone mothers. This led to a commission to write a report for the Bank of England on the likely impact of WFTC. Taking a longer-term view of how tax and benefit changes have affected participation requires additional work on IFS's tax and benefit microsimulation

model, TAXBEN. Centre-funded work is now being carried out to extend the functionality of TAXBEN as far back as the April 1978 tax system (at present, it runs back to 1984), running on Family Expenditure Survey data back to the 1978 calendar year. Initial tests of these extensions to the model have been encouraging.

Blundell, R. W., Duncan, A., McCrae, J. and Meghir, C. (1999), *The Labour Market Impact of the Working Families Tax Credit*, London: Bank of England.

Chennells, L. and Dilnot, A. (eds) (1999), *The IFS Green Budget: January 1999*, Commentary no. 76, London: IFS.

Clark, T. and McCrae, J. (1999), *Taxing Child Benefit*, Commentary no. 74, London: IFS.

Giles, C. and McCrae, J. (1998), 'Reforms to in-work transfer payments in the UK', in C. Lucifora and W. Salverda (eds), *Policies for Low Wage Employment and Social Exclusion*, Milan: FrancoAngeli.

Gregg, P., Johnson, P. and Reed, H. (1999), *Entering Work and the British Tax and Benefit System*, London: IFS.

Section in the Inflation Report, Bank of England, February 1999.

Contacts: Julian McCrae, Howard Reed and Alan Duncan

WAGE DETERMINATION

It is common knowledge that the average earnings of British men have increased markedly since the late 1970s. Research within the Centre has sought to analyse this trend, exploring both the changes in hourly wage rates and the developments in male labour force participation.

The first part of this analysis used data from the UK Family Expenditure Survey (FES) and the General Household Survey (GHS) to describe and explain changes in the distribution of male wages. Since the late 1970s, wage inequality has risen very fast in the UK and this rise is characterised by increasing education and age differentials. The results show that the changes can be summarised quite simply as increases in educational differentials and a decline of growth of entry-level wages, which persist subsequently and are interpreted as cohort effects.

Simultaneous with these wage developments, there has been a marked decline in the employment rate for men, particularly amongst the lower-skilled. A Centre research project aimed to analyse how declines in labour force participation could affect measures of average earnings (such as the Office for National Statistics's average earnings index) by relating the decision to participate in employment to a sample selection model where men who have higher earnings potential are more likely to participate. In this framework, decreases in the employment rate mean that measured average wages for employed men are higher than the average wage would be if everyone were in employment. Using exogenous changes in benefit receipts to identify a selection model for employment and wages on FES data, it was found that the decline in male participation over the period 1978–96 meant that estimates of average earnings growth over the period were around 10 percentage points higher than they would have been if employment rates had remained unchanged.

Other Centre-funded work has used microeconomic data from the British Household Panel Survey (BHPS) and the General Household Survey to describe how the distribution of pay differed between the public and private sectors in 1983 and in the early 1990s. The main conclusion is that workers in the public sector have earned a pay 'premium' in the past, but

that this 'premium' has eroded over time. Separate analysis by gender and education group reveals that it is women and those with intermediate-level qualifications who enjoy the largest 'premium'. A second striking feature of the data is that the pay distribution is more compressed in the public sector. Finally, although the panel data show that some of the differences between the public and private sectors can be accounted for by individual characteristics, there still remains a distinct pattern of 'premiums' from working in the public sector.

Another major development in the labour market in recent decades has been the dramatic convergence in the experiences of men and women. The Centre has co-funded work for the Leverhulme Trust which has investigated the role of education and skill in these changes. For those leaving school after 18, there has been little difference in the wage distribution for men and women throughout the 1980s. But for those leaving at or before 16, there has been a dramatic closing in the gender gap, with low-skilled women making substantial gains relative to their male low-skilled counterparts. One possible explanation is that men and women have changed their schooling choices over time, but no support for this theory could be found in data from the National Child Development Survey (NCDS) and British Cohort Study 1970 (BCS70). An alternative explanation that technological changes have favoured the types of skills predominantly found in female workers is being explored.

The source of wage growth is a crucially important issue for understanding the life-cycle evolution of wages and individual productivity as well as for the evaluation of active labour market programmes such as wage subsidies. Using a major new German dataset in a project co-funded by the Anglo-German Foundation, we developed a model of wage growth within and across jobs. The dataset has the unique feature of recording all the job changes together with the individual's earnings. Using these data, we found that wages grow primarily with experience and with job search, but not with tenure. However, the return to experience for skilled workers in Germany (those with an apprenticeship) is no more than 2.7 per cent. Work on this project is continuing and is now focusing on the less skilled.

Blundell, R. W., Reed, H. and Stoker, T. (1999), 'Interpreting movements in aggregate wages: the role of labour market participation', IFS, Working Paper no. 99/13.

Disney, R. and Gosling, A. (1998), 'Does it pay to work in the public sector?', *Fiscal Studies*, vol. 19, no. 4, pp. 347-74.

Dustmann, C. and Meghir, C. (1999), 'Wages, experience and seniority', IFS Working Paper no. 99/1.

Gosling, A., Machin, S. and Meghir, C., 'The changing distribution of male wages in the UK', *Review of Economic Studies*, forthcoming.

Contacts: Gillian Paull, Amanda Gosling and Costas Meghir

INEQUALITY

Much of our research on tax and benefit modelling, on the distribution of savings and wealth and on the changing distribution of individual earnings is motivated by our desire to understand the changing pattern of inequality and poverty in the UK.

During the past year, work also began on updating the substantial body of work on inequality already undertaken by researchers at IFS. Previous work documented trends in inequality up to the early 1990s, showing the huge growth that occurred in the 1980s starting to level off. Now, with data up to the late 1990s, we are able to identify whether this heralded the start of

a period of falling inequality, or whether it simply represented a temporary pause before inequality took off again as the economy started to recover. Preliminary evidence, to be published in the December 1999 issue of *Fiscal Studies*, suggests that inequality did indeed start to rise again in the latest period of economic growth, but with a slightly delayed effect. There is some suggestion that a large part of this change has been driven by renewed wage growth, particularly amongst the highest earners.

Over this period, we have also started a major assessment of consumption inequality and its relationship to income inequality. Using micro-data sources on consumption and income from the UK and the US, this work has been used to describe the degree to which the well-documented changes in income inequality in both countries are transitory or permanent.

Clark, T. and Taylor, J., 'Income inequality: a tale of two cycles?', *Fiscal Studies*, forthcoming.

Blundell, R. W. and Preston, I. (1999), 'Consumption inequality and income uncertainty in the UK and US', John D. and Catherine T. MacArthur Foundation Conference on Inequality and Economic Performance, London, May.

Contacts: Jayne Taylor and Ian Preston.

LOCAL GOVERNMENT

Centre research in the area of local government finance and taxation has built on earlier work looking at the impact of direct controls, known as 'caps', on local government expenditure. Whereas over the period 1985–86 to 1990–91 these caps were applied *selectively* to a small number of councils seen as 'overspending', subsequent years have seen these limits applied *universally* to all councils. Econometric techniques were used to estimate what the level of desired council spending would have been in the absence of spending controls. This is particularly important to government policy since, if a wedge between desired and actual spending does exist, this could result in increases in council tax bills, given that the current government has now implemented its manifesto pledge to 'abolish crude and universal council tax capping'.

The results show that spending by councils that provide more major services such as social security and education was, on average, some 6 per cent below the level it would have been in the absence of capping. Shire district councils, which provide relatively more minor services, have also been affected, with spending some 20 per cent below its unconstrained level. Looking at individual services, the research finds that capping has led to reduced spending on major services such as primary and secondary schools, social services and the police. The research also shows that universal capping has led to a significant deterioration in potential indicators of service quality, including pupil–teacher ratios at both the primary and secondary level.

Other Centre research, co-funded by the Joseph Rowntree Foundation, looked at potential reforms to council tax benefit (CTB). This is a much-neglected area of welfare reform, despite the fact that CTB is received by more people than any other means-tested benefit. The research found that the current system was not without problems, particularly in terms of low take-up, complexity, a break between the link of local spending decisions and taxes paid, and the fact that many in the middle of the income distribution still faced high council tax burdens. However, reform options either proved very expensive or led to some individuals on low incomes losing out, potentially undermining the notion of a national 'safety net'.

Clark, T., Giles, C. and Hall, J. (1999), *Does Council Tax Benefit Work?*, London: IFS.

Emmerson, C., Hall, J. and Windmeijer, F. (1999), 'The impact of expenditure limitations on local service provision', IFS, mimeo.

Contact: Carl Emmerson

5. A Look Forward

In this section, we summarise plans for the development of specific aspects of the Centre's research over the coming year.

HOUSEHOLD SAVING BEHAVIOUR

An important area for research will be considering the effects of pensions on retirement behaviour. Centre researchers are part of an International Social Security Project, sponsored by the US National Bureau of Economic Research, looking at the incentive effects of state pensions on the timing of retirement. Given the importance of private pensions in the UK, the analysis will include occupational and personal pensions as well as the basic state pension and SERPS. The approach to measuring the effect of pensions on the timing of retirement will follow that of option value models and look at the impact of current and anticipated future pension accruals on the decision to retire in each period. Early results show striking differences between the retirement behaviour of people with and without occupational pensions: those with an occupational pension are less likely to retire before the age of 60 than those without, but more likely to retire after the age of 60. These observed differences are consistent with the incentive structure of defined benefit occupational schemes, where the last years of earnings matter for the level of pension received in retirement. Regression analysis will be used to measure these incentive effects more precisely.

A new area of research will address the issue of selection in annuity markets. Previous studies have looked at the different degrees of adverse selection of annuitants in the markets for voluntary annuitants and compulsory annuitants. However, this work has only used information on annuity prices, annuitant life tables and population life tables. There is wide scope for research to look at the issue of selection in annuity markets using micro-data focusing on the characteristics of potential and actual annuitants. The best data source for this will be the Family Resources Survey, which contains a sufficiently large number of observations to look at the characteristics of current — and future — annuitants. Linked to this is the issue of differential mortality. Earlier work at the Centre using the Retirement Survey found that individuals who survived a five-year period tended to have higher levels of initial wealth than those who died. Research will examine in more detail the relationship between mortality and wealth, looking in particular at the following issues: is relative or absolute wealth more important? Is mortality correlated with total wealth or more liquid forms of wealth, or is it current income that matters? Does wealth matter more at relatively younger or older ages? Does wealth still matter once initial health status or other factors such as education are controlled for?

CONSUMPTION GROWTH AND PRECAUTIONARY SAVING

In the future, research in this area will continue to focus on the evaluation of models of consumption growth over the life cycle. We intend to retain the emphasis on exploring simulation techniques as well as using estimation based on both cross-sectional and panel data. In particular, our work will evaluate the performance of standard life-cycle models, accounting for labour supply and demographic effects, when compared with alternative intertemporal models of decision-making (such as those implied by the notion of hyperbolic

discounting) and investigate the degree to which the two frameworks yield testably different conditions. Research will also follow up our work on the retirement-savings puzzle to look in more detail at how changes in consumption patterns around the time of retirement are related to changes in income patterns at the same time, and the degree to which such changes in resources are anticipated or unanticipated. Third, we will continue to look at the empirical performance of the consumption Euler equation framework for different groups of households, whether defined by their demographic variables (such as education) or by their degree of participation in asset markets. Finally, using both quantitative and qualitative techniques, we will continue to investigate the role of risk and precautionary saving effects in households' intertemporal decisions.

PRICE INDICES AND THE COST OF LIVING

One interesting line of future research is the examination of price indices for different social groups and their relationship to the headline rate of inflation, which is some sort of an average over these groups. For example, on the basis of this September's low inflation figures, a very low indexation increase was applied to the basic state pension and other state benefits. Many organisations representing low-income groups expressed concern that the true rates of inflation experienced by these groups were actually higher than the headline rate used to uprate their benefits. Such a difference is hardly surprising, since the sorts of goods that particular groups consume may be quite different from the average. In addition, each group's contribution to the average 'basket of goods' is weighted by their spending share and not their population share, which lowers the weight given to low-income groups. Perhaps even more interesting is the question of whether different groups face systematically different prices for equivalent goods — the often-quoted example is that lack of access to suitable transport can deny some groups the opportunity of buying cheap supermarket goods. Previously, we have not been able to analyse this area because of lack of information on the prices that specific individuals pay. Recently, we have obtained data from the National Food Survey, which records expenditure data and, uniquely, quantity data. This will enable us to look at household-specific unit prices for all the listed items.

CONSUMER DEMAND, INDIRECT TAXATION AND WELFARE

The analysis of consumer spending patterns and indirect tax issues will remain an important part of Centre research. In particular, we plan to use the National Food Survey to look in detail at how demands for the characteristics embodied in marketed goods relate to the demand for the goods themselves. The Food Survey contains data on food purchases in terms of physical units — with corresponding unit prices — but also allows individual food items to be translated into their nutritional components. This will allow us to look at the demands for different nutritional attributes conditional on the characteristics of the individuals within the household, income and the prices of these different nutritional variables. Work on social welfare will be extended to consider the way in which joint distributions in any number of dimensions can be ranked in terms of the social welfare derived from them. A three-dimensional example might be joint distribution of health, income and education.

COMPANY TAXATION

Over the next year, we will be updating and developing our measures of how corporate tax systems affect investment and location decisions. One specific question relates to the impact of special tax regimes for multinational corporations (e.g. Belgian co-ordination centres, Irish financial services companies) on the costs of investing in different locations. A more general issue concerns the potential impact of greater co-ordination of corporate tax systems within the EU.

We have been discussing with HM Treasury, the DTI and the Inland Revenue how the proposed R&D tax credit for small and medium-sized enterprises (SMEs) will be evaluated. A proposal written by Centre researchers has persuaded the Office for National Statistics to modify the design of the Business Enterprise R&D (BERD) survey over the coming years in order to facilitate an effective evaluation of this policy. Work at the Centre will evaluate this new R&D tax credit using panel data from the ARD. We have been discussing the possibility of gaining access to the micro BERD data and Inland Revenue tax record data. If we obtain access to these data, we will be able to conduct a difference-in-difference type analysis — that is, we will be able to compare the growth in R&D in firms that were eligible for the credit (the treated) and those that were not (the control). This would allow us to isolate the impact of the tax credit from other changes in the economic environment, something that most other studies have not been able to do.

THE LOCATION DECISION OF THE FIRM

We will continue to work on the location of production establishments within the UK. This will include further work on the spatial clustering of particular industries, which we will extend to investigate the effects of selective regional investment grants.

A policy issue that has received much attention recently is the role of government in encouraging agglomeration economies. Work in the new economic geography literature suggests that there are positive externalities associated with clusters of ‘similar’ firms, where similar could be defined in terms of the inputs used or the outputs produced. Regional grants, infrastructure projects and other policies affect firms’ decisions over where to locate production. Over the next year, we will continue our work using the ARD data to map out where production activity takes place and look for evidence of agglomeration economies. We are discussing this work with economic geographers at the London School of Economics and hope to undertake joint work with them in the coming year.

One area of particular interest is the role that regional selective assistance (RSA) has played in influencing firms’ location decisions and in encouraging agglomerations. We have recently gained access to detailed information on individual grants offered under RSA. Under a project funded by the Leverhulme Trust, we are matching these grant data to the detailed establishment-level ARD data and investigating the impact of grants on firms’ location decisions. This matched dataset will provide a valuable resource to investigate other issues in regional policy over the coming year, such as the impact these grants have had on firms’ productive behaviour.

COMPANY INVESTMENT AND FINANCIAL BEHAVIOUR

Research on company investment behaviour will explore further the relationship between investment and uncertainty. A major aim over the next year will be to test whether the empirical relationship between company investment spending and share price volatility is consistent with the predictions of investment models based on non-convex adjustment costs (e.g. irreversibilities or fixed costs). Since investment patterns among large firms do not display the pure threshold behaviour predicted by these models, this will require us to consider the issue of aggregation (e.g. over several plants or subsidiaries) within this class of investment models.

We will also develop our research on the relationship between share prices and firms' investment and financial behaviour. Our current results with US data suggest that share prices do not simply discount current expectations of future profits, but that firms do not increase investment spending in periods when share prices are overvalued relative to expected future profits. This raises the question of whether firms seek to exploit periods of share price overvaluation by issuing new equity (or debt). With the US data currently available, we can investigate the relationship between the firm's financial behaviour and alternative measures of its value, obtained from share prices and data on expected future profits. At the same time, we will explore the availability of UK data on analysts' forecasts of future profits.

ECONOMETRIC METHODS FOR PANEL DATA

A problem arises with the estimation of the parameters in a dynamic panel data model by standard GMM techniques when the process under investigation is very persistent, a feature of many economic processes. A limiting case is that the process is a pure random walk, and in that case none of the known GMM estimation techniques can identify the parameters from panels with a short time dimension. It is therefore very important to be able to test whether the process under consideration has a unit root. Existing tests are known to have bad size and/or power properties. We will develop and evaluate new tests and associated estimation procedures.

A second problem with applications of GMM estimators in this context is that standard asymptotic inference for efficient (two-step) GMM estimators has been shown to be very unreliable in small samples, due to the fact that estimated standard errors are downward biased. We will develop criterion-based methods of inference, which compare minimised values of the GMM objective criterion in models that impose and do not impose the null hypothesis under consideration. This project is related to an analysis of bootstrap inference procedures in this context, which is separately funded by the ESRC.

INNOVATION AND PRODUCTIVITY

We will continue to work on a range of projects in the area of innovation and productivity.

A major policy objective of the UK government is to increase the growth rate of productivity. In order to achieve this, we need to understand what the determinants of productivity growth are. How important is growth in incumbent plants relative to the entry of higher-productivity and exit of lower-productivity plants? One area of particular interest is how important inward

investment in the UK has been in raising productivity levels. We will be investigating this question using the Census of Production (ARD) database.

In a project funded by the Gatsby Foundation, we will be working with researchers at the Institute for Manufacturing at Cambridge University. Combining econometric and case-study work, we will be looking at the determinants of productivity growth in a small number of industries. In order to undertake this research, we need to confirm the reliability of the ARD data. A potential area of concern with the ARD data in this context is the need to estimate values for the establishment's capital stock. We will evaluate alternative approaches to estimating capital stocks and assess the sensitivity of empirical results to different capital stock estimates.

A related area of interest concerns the diffusion of knowledge and the factors that allow many firms to catch up rapidly with firms at the technological frontier. How important are factors such as trade, inward investment, geographical proximity, work-force skills and training in the transmission process? We will extend our current work, which investigates these issues using industry-level data, to exploit the establishment-level ARD database.

One area of particular interest is how changes in product market competition affect productivity. In order to be able to identify the impact of such changes, we need to have exogenous variation in the economic environment. The types of changes we will use include increases in import penetration arising from EU integration and the outward shift in the technological frontier arising from an increase in R&D in the US (the technological leader in many industries).

We will also investigate the importance of proximity (either geographically or in terms of industrial activity) in facilitating spillovers. Do firms located near to each other learn from each other more quickly than those located at a distance (i.e. is there evidence of agglomeration economies arising due to spread of tacit knowledge)?

HEALTH

We will investigate whether the tax escalator on tobacco that has been in place since 1993 has had a significant impact on smoking participation and consumption of cigarettes. Using data from the Family Expenditure Survey, General Household Survey and British Household Panel Survey, we will estimate participation and consumption equations taking account of potential addiction effects. We will further analyse the extent to which there are differences in behaviour between subgroups of the population — for example, different age, income, class and education groups.

EDUCATION AND TRAINING

In the coming year, we plan to look more closely at what drives young people's education decisions. This area of research will seek to model the incentives underlying the choice to continue education and, wherever possible, will exploit policy and institutional changes that have occurred over the last 20 years to better identify the importance of incentives for educational choice. This work will use data from the Youth Cohort Studies (YCS) as well as the General Household Survey (GHS), Family Expenditure Survey (FES) and Family

Resources Survey (FRS). This research will be linked to the evaluation work IFS is carrying out for the DfEE on the pilots of the government's new Education Maintenance Allowance.

New waves of the National Child Development Survey (NCDS) and British Cohort Study 1970 (BCS70) birth cohorts are currently in the field. We plan to update our existing work on the returns to education and training using these new data when they become available.

LABOUR SUPPLY

Future work planned in the labour supply area includes both descriptive analysis of past developments within the labour market and evaluation of the impact of changes in tax and benefit policies on employment and chosen hours of work.

The main descriptive project aims to assess how changes in the unemployment rate as defined by the International Labour Organisation have been affected by changes in employment growth, economic activity, labour market participation and shifts in the demographic structure of the UK population over the period 1975 to the present day. This is a first step in assessing whether the quicker fall in unemployment after emergence from recession in the early 1990s compared with the early to mid-1980s was due to the increased flexibility of the British labour market in the 1990s or was caused by other factors. We also hope to decompose employment changes by industry and by occupation. The data used come from the UK Labour Force Survey.

In addition, a new area of research for the Centre will involve the examination of the incidence, causes and consequences of child labour, using data from the Indonesia Family Life Survey (IFLS) for 1993–94 and 1997–98. The IFLS is an ongoing longitudinal survey of individuals, households, families and communities in Indonesia. Overall, the IFLS sample is representative of approximately 83 per cent of the Indonesian population. Policy interventions in the area of child labour depend on why child labour is occurring. If it is a direct result of household poverty, then clearly any attempts to ban it outright may be welfare-reducing unless the household is compensated for the loss of income associated with its abolition. If, on the other hand, it is occurring as a result of low returns to schooling, then policy initiatives should be directed at education, and making child labour illegal should be considered. Only upon empirical assessment of the causes of child labour can such policy choices be evaluated.

Turning to the evaluation of the impact of tax and benefit policies, a wide-ranging examination will be undertaken of how the changes to the UK tax and benefit systems over the last 20 years have affected the employment and labour force participation of working-age men and women. This will be facilitated by the continuing development of the TAXBEN microsimulation model to run on data back to 1978. With additional funding from the Treasury, an investigation into the impact of taxes and benefits on transitions into and out of the labour market is planned over the next two years, using a dynamic model of entry into and exit from work. This will exploit Centre funding in keeping IFS's copy of the Labour Force Survey (LFS) up to date as well as modifying the TAXBEN model to run on LFS data.

Policy involving in-work subsidy schemes will be scrutinised more closely in several ways. First, we will analyse how changes in the hours rules for family credit (FC) in 1992 and 1995 affected the distribution of hours worked for lone mothers claiming FC. We are particularly interested in whether FC claimants needed to change jobs in order to change the number of hours they worked and, if so, how wages in the new job compared with those in the old job.

The reforms provide an interesting opportunity to test certain search-theoretic models of labour supply against standard models of the labour market.

Second, in work partially funded by the Inland Revenue, the dynamics of FC will be analysed using British Household Panel Survey data and the Lone Parent Cohort data from the Programme of Research into Low-Income Families (PRILIF). One of the important questions for in-work subsidies and employment tax credits is whether supported employment can lead to sufficient skill development and wage growth to allow individuals to move up the employment ladder into independent work. Comparing employment changes for mothers eligible for FC over the 1990s with natural labour market dynamics will allow the impact of benefit receipt on both current and post-programme employment patterns to be captured.

One other area involving in-work subsidies will be the continued analysis of the effects of the working families tax credit (WFTC) on the employment decisions of parents. There are a number of aspects that need developing, based on our earlier work. First, we intend to analyse the impact of the WFTC reform on childcare usage, allowing for the possibility that nursery education is considered by parents as a positive benefit. Viewed from this angle, the new WFTC programme could have much stronger incentive effects since work becomes a way of obtaining subsidised education for the worker's child. Second, we intend to pursue the comparison of evaluation methods, based on structural and quasi-experimental methods. In particular, we will examine the ability of the structural model to fit the results from a simple comparison between different demographic groups, as would be done if following a difference-in-differences approach.

Finally, Centre support for the development and continued updating of the TAXBEN model will be a valuable resource supporting other projects in the labour supply field. For example, research sponsored by the Nuffield Foundation on the impact of childcare costs, quality and policies on the employment choices of mothers will require TAXBEN to simulate net incomes in unobserved scenarios.

Work will continue both on evaluating the impact of the New Deal in the UK and on the effects of the Swedish active labour market programmes. To complete the *ex-ante* evaluation of the New Deal under the proposed setting, we must finish the ongoing process of solving it computationally. The next step will be to simulate different policies and to introduce some changes in order to make the model more general. For the *ex-post* analysis, we intend to develop a structural model of unemployment durations, taking endogenously into account the several choices made at different stages of the unemployment period. This recognises that individuals select into different options during unemployment, both before and after entering the programme — in fact, some evidence was found supporting the existence of some selection during the months before becoming eligible.

WAGE DETERMINATION

As part of the development of data resources, work within the Centre will focus on the construction of a consistent lifetime working history from the various waves of the British Household Panel Survey. A technical paper is planned, analysing the types of problems arising from inconsistencies between past behaviour reported at different interviews, together with a comparison of different methods of reconciliation. The optimal method will typically depend upon the type of analysis to be undertaken. Final data output will be invaluable to projects considering labour market transitions and, in particular, to a project sponsored by the Leverhulme Trust estimating the returns to tenure and experience for men and women.

We plan to extend the work that has been carried out within the Centre looking at male labour market participation over the last 20 years and the extent to which self-selection into the labour force has affected measured average wages. Our intention is to extend this work to look at the female wage distribution, which will require a more complex model of employment determination as childbirth and child-rearing have to be taken into consideration. We are also interested in looking at the impact of non-random selection into employment on measured wages at different quantiles of the distribution (i.e. the 25th percentile, median, etc.) This work will exploit recent econometric advances in quantile regression techniques in the presence of censoring and sample selection.

We plan to extend our work on wage growth in a number of directions using a number of European and other international data set, for example the German IAB data set. First, we will extend our work to examine the wage profiles of unskilled workers and compare those to skilled workers. Second, we will compare wage growth with that of the US and possibly the UK. Finally we are starting a project on explaining the decisions of young people to become apprentices or not, our aim being to assess the impact economic conditions on such a choice.

INEQUALITY

The future research agenda on inequality will develop work already underway at the Centre and co-funded by the Leverhulme Trust, and will revolve around two core elements: documentation of trends in income inequality in the 1990s, bringing our previous work up to date; and a comparison of the distribution of income and the distribution of spending in the 1990s against the experience of the 1980s. We will assess the extent to which the observed distributional changes represent statistically significant changes in inequality or simply random variation, and compare results from different datasets. We also aim to extend understanding of the underlying causes of inequality and to investigate some of the more technical issues relating to the nature of inequality trends, in a number of ways. First, we will exploit the much larger datasets now available (e.g. the Family Resources Survey and NOP's Financial Research Survey) to undertake detailed analysis of the experience of particular subgroups in the population. Second, we hope to go some way to improve understanding of the causes underlying the differences between income and expenditure inequality, using panel data to investigate the nature of spending dynamics. Finally, we will attempt to provide a more comprehensive picture of individual welfare than that captured by just one dimension of living standards, by examining the joint distribution of a variety of contributory factors, such as income and health, or consumption and leisure.

6. Financial Summary

The table below summarises how the ESRC's financial contribution to the Centre was spent. Once again, it has been possible to work within the ESRC's cash limits and it is envisaged that this will be the case throughout the remainder of the contract period. The ESRC Centre contributes around 35 per cent of IFS income. The remainder is derived from IFS membership subscriptions, publication sales, conference income and general project funding. In addition to other ESRC support, general project funding comes from research trusts (such as the Anglo-German Foundation, the Nuffield Foundation, the Leverhulme Trust and the Joseph Rowntree Foundation), government departments (such as the Department of Social Security, HM Treasury, the Department for Education and Employment, the Department of the Environment, Transport and the Regions, and the Inland Revenue), the European Union (under TSER and TMR programmes) and other bodies, including the International Fiscal Association, the Bank of England, the Charities Aid Foundation, BBC TV and Goldman Sachs. In addition, the IFS Tax Law Review Committee has been supported by a consortium of private sector firms, government departments and professional bodies.

Salary costs make up the bulk of expenditure within the Centre. IFS determines its own salary structure through internal discussion with staff and by referral to its Executive Committee, with negotiations taking into account prevailing levels of remuneration in both the Civil Service (primarily the GES) and universities. IFS operates a personal pension scheme under which it matches the contribution of the employee.

Other expenditure covers payments to Research Fellows and Associates (13 are financed, at least in part, by the Centre), the cost of the Research Scholars (including their fees paid to UCL), secretarial costs, overheads (at an average of 50 per cent of direct salaries), computing, travel and miscellaneous costs.

RESEARCH CENTRE BREAKDOWN OF COSTS, 1998–99 (Academic Year)

Research staff	£327,266
Research Fellows and Associates	£30,350
Research Scholars	£21,562
Summer Interns	£2,021
Total research staff	£381,199
Secretarial support	£20,128
Computing costs	£22,523
Conference costs	£6,199
UK travel	£8,707
Overseas travel	£7,996
Overheads	£200,663
Miscellaneous	£63,000
Total costs	£710,415

7. Centre Output

GROUP A: PUBLICATIONS AND DISSEMINATION

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- Blundell, R. W., Griffith, R. and Windmeijer, F. (1999), 'Individual effects and dynamics in count data models', IFS Working Paper no. 99/3.
- Blundell, R. W., Reed, H. and Stoker, T. (1999), 'Interpreting movements in aggregate wages: the role of labour market participation', IFS Working Paper no. 99/13.
- Bond, S. R. and Devereux, M. P. (1999), 'Generalised R-based and S-based taxes under uncertainty', IFS Working Paper no. 99/9.
- Bond, S. R., Harhoff, D. and Van Reenen, J. (1999), 'Investment, R&D and financial constraints in Britain and Germany', IFS Working Paper no. 99/5.
- Carlin, W., Glynn, A. and Van Reenen, J. (1999), 'Quantifying a dangerous obsession? Competitiveness and export performance in an OECD panel of industries', IFS Working Paper no. 99/22.
- Caroli, E. and Van Reenen, J. (1999), 'Organisational change and human capital: evidence from British and French enterprises in the 1980s and 1990s', IFS Working Paper no. 99/23.
- Chennells, L. and Van Reenen, J. (1999), 'Has technology hurt less skilled workers? An econometric survey of the effects of technical change on the structure of pay and jobs', IFS Working Paper no. 99/27.
- Dearden, L. (1999), 'Qualifications and earnings in Britain: how reliable are conventional OLS estimates of the returns to education?', IFS Working Paper no. 99/7.
- Devereux, M. P., Griffith, R. and Simpson, H. (1999), 'The geographic distribution of production activity in the UK', IFS Working Paper no. 99/26.
- Disney, R. (1999), 'OECD public pension programmes in crisis: what are the reform options?', World Bank, SP Discussion Paper no. 9921.
- Disney, R. (1999), 'Declining public pensions in an era of demographic ageing: will private provision fill the gap?', University of Nottingham, Discussion Paper in Economics no. 99/27.
- Disney, R. (1999), '*Public Policy towards Pensions*, Schieber, S. J. and Shoven, J. B. (eds)', *Journal of Economics*, vol. 69 (book review).

- Disney, R. (1999), 'Tax Policy and the Economy 12, Poterba, J. B. (ed.)', *Journal of Economic Literature*, vol. 37 (book review).
- Disney, R., Haskel, J. and Heden, Y. (1999), 'Entry, exit and establishment survival in UK manufacturing', University of Nottingham, School of Economics, Centre for Research on Globalisation and Labour Markets, Research Paper no. 99/9.
- Disney, R., Henley, A. and Stears, G. (1999), 'Housing costs, house price shocks and savings behaviour among older households in Britain', University of Nottingham, Discussion Paper in Economics no. 99/10.
- Disney, R. and Tanner, S. (1999), 'What can we learn from retirement expectations data?', IFS Working Paper no. 99/17.
- Dustmann, C. and Meghir, C. (1999), 'Wages, experience and seniority', IFS Working Paper no. 99/1.
- Dustmann, C. and Windmeijer, F. (1999), 'Wages and the demand for health: a life cycle analysis', IFS Working Paper no. 99/21.
- Emmerson, C., Hall, J. and Windmeijer, F. (1999), 'The impact of expenditure limitations on local service provision', IFS, mimeo.
- Emmerson, C. and Tanner, S. (1999), 'A note on the taxation of private pensions and Individual Savings Accounts', IFS, mimeo.
- Emmerson, C. and Tanner, S. (1999), 'The government's proposals for stakeholder pensions', <http://www.ifs.org.uk/research/pensionsandsavings/stakeholder.pdf>, IFS, Briefing Note no. 1/99.
- Griffith, R. (1999), 'Productivity and foreign ownership in the UK car industry', IFS Working Paper no. 99/11.
- Horstmann, I. and Scharf, K. A. (1999), 'The new federalism: distributional conflict, voluntarism and segregation', CEPR, Working Paper no. 2273.
- Meghir, C. and Palme, M. (1999), 'Assessing the effect of schooling on earnings using a social experiment', IFS, Working Paper no. 99/10.
- Santos Silva, J. M. C. and Windmeijer, F. (1999), 'Two-part multiple spell models for health care demand', IFS Working Paper no. 99/2.

6. DATASETS

Paull, G., preparation of PRILIF Lone Parent Cohort data

Paull, G., compilation of BHPS lifetime work histories

7. SOFTWARE

Corporation Tax Model: Contact: Lucy Chennells

DPD (Dynamic Panel Data Modelling): Contact: Steve Bond

NP-REG (Non-Parametric Regression): Contact: Alan Duncan

SPAIN-III (Simulation Program for the Analysis of Incentives): Contact: Alan Duncan

SPIT (Simulation Program for Indirect Taxation): Contact: James Banks

TAXBEN2 (Tax and Benefit Model): Contact: Julian McCrae

8. EDITORSHIPS

Attanasio, O., Managing Editor, *Review of Economic Studies*
 Besley, T., Co-Editor, *American Economic Review*
 Besley, T., Joint Managing Editor, *Economic Journal*
 Besley, T., Associate Editor, *Economics and Politics*
 Besley, T., Associate Editor, *International Tax and Public Finance*
 Besley, T., Associate Editor, *Journal of Development Economics*
 Blundell, R. W., Co-Editor, *Econometrica*
 Blundell, R. W., Guest Editor, *International Tax and Public Finance*, special issue on Public Finance, Employment and Labor Markets, August 1999
 Bond, S. R., Associate Editor, *Economica*
 Bond, S. R., Editorial Board, *Fiscal Studies*
 Dearden, L., Guest Editor, *International Tax and Public Finance*
 Devereux, M. P., Associate Editor, *International Tax and Public Finance*
 Disney, R., Editorial Board, *Australian Economic Review*
 Disney, R., Editorial Board, *Fiscal Studies*
 Griffith, R., Guest Editor, *International Tax and Public Finance*
 Meghir, C., Joint Managing Editor, *Economic Journal*
 Miles, D., Managing Editor, *Fiscal Studies*
 Myles, G., Managing Editor, *Fiscal Studies*
 Myles, G., Production Editor, *Review of Economic Studies*
 Myles, G., Editorial Board, *European Journal of Political Economy*
 Myles, G., Editorial Board, *Journal of Public Economic Theory*
 Myles, G., Editorial Board, *Review of Economic Studies*
 Preston, I., Managing Editor, *Fiscal Studies*
 Van Reenen, J., Associate Editor, *European Economic Review*
 Van Reenen, J., Associate Editor, *Journal of Industrial Economics*
 Van Reenen, J., Associate Editor, *Review of Economic Studies*
 Violante, G., Editorial Board, *Review of Economic Studies*

9. SUMMARY OF PUBLICATIONS AND DISSEMINATION, 1990–1 to 1998–9

GROUP A: PUBLICATIONS AND DISSEMINATION	1990–1 No.	1991–2 No.	1992–3 No.	1993–4 No.	1994–5 No.	1995–6 No.	1996–7 No.	1997–8 No.	1998–9 No.
1. Books and monographs	6	10	9	8	11	8	10	9	12
2. Chapters	20	30	24	18	13	13	9	15	30
3. Refereed journal papers	32	32	46	37	33	41	25	44	52
4. Non-refereed journal papers	35	26	36	28	12	8	6	7	8
5. Other publications	21	33	37	35	24	19	19	35	36
6. Datasets		1			1				2
7. Software	1	2	1	2	2	1	2	1	6
8. Editorships	8	8	14	12	26	31	29	28	27

GROUP B: EXTERNAL RELATIONSHIPS

1. MEMBERSHIP OF COMMITTEES

Attanasio, O., Advisory Board Member, MECOVI (a World Bank and IADB initiative to promote new household surveys in Latin America)

Besley, T., Co-Director, STICERD Economic Organization and Public Policy Program, LSE

Besley, T., Deputy Chairman, STICERD

Besley, T., Co-organiser, UK Public Economics Working Group

Blundell, R. W., Executive Council, Econometric Society

Blundell, R. W., The Research Committee, British Academy

Blundell, R. W., Council, European Economics Association

Blundell, R. W., Panel Member, National Academy of Science, Washington

Blundell, R. W., Governing Board, National Institute of Economic and Social Research

Blundell, R. W., Advisory Committee, Department of Applied Economics, Cambridge

Bond, S. R., Member, ESRC Politics, Economics and Geography (PEG) College

Crawford, I., Co-organiser, UK Public Economics Working Group

Dearden, L., Member, DfEE Skills Research Group

Dearden, L., Member, DfEE Working Group on the Returns to Education and Training

Devereux, M. P., Member, Expert Panel of the European Commission on Measurement of Taxation in the EU

Dilnot, A., Social Security Advisory Committee

Dilnot, A., Foresight Aging Panel

Dilnot, A., Advisory Committee, Centre for Research in Social Policy, University of Loughborough

Dilnot, A., Advisory Committee, Social Studies Faculty, University of Oxford

Dilnot, A., External Relations Advisory Committee, ESRC

Meghir, C., Prize Committee, Bodosaki Foundation

Scharf, K., Appointed Member, RES Annual Conference Committee

Scharf, K., Co-organiser, UK Public Economics Working Group

Smith, S., Co-organiser, UK Public Economics Working Group

2. MEMBERSHIP OF NETWORKS

Attanasio, O., Member, LACEA Network on Poverty in Latin America

Attanasio, O., UCL Co-ordinator, TMR Network on New Analysis of Economic Fluctuations

Banks, J., Member, TMR Savings & Pensions group

Besley, T., Program Director, Centre for Economic Policy Research, Program in Public Policy

Blundell, R. W., Member, TMR Savings & Pensions group

Blundell, R. W., Member, National Academy of Science, Panel on Ageing Research

Blundell, R. W., Member, NBER Network on Pensions and Retirement

Bond, S. R., Co-ordinator, ESRC Econometric Study Group

Disney, R., Member, TMR Savings & Pensions group

Disney, R., Member, ESP Scientific Network, co-ordination committee: demographic and labour force participation trends and their implications for social protection expenditure

Disney, R., Member, Cabinet Office Co-ordinating Committee: Active Ageing project

Griffith, R., Research Affiliate, Centre for Economic Policy Research

Miles, D., Member, Centre for Economic Policy Research

Miles, D., Member, Clare Group
 Redding, S., Research Associate, Centre for Economic Performance, LSE
 Redding, S., Research Affiliate, Centre for Economic Policy Research
 Scharf, K., Warwick/IFS/ESRC Public Economics Working Group
 Tanner, S., Member, NBER Network on Pensions and Retirement
 Tanner, S., Member, TMR Savings & Pensions group
 Van Reenen, J., Co-ordinator, TSER Innovation, R&D and Productivity Network
 Van Reenen, J., Member, TSER Growth, Inequality and Training Network
 Violante, G. L., Research Affiliate, Centre for Economic Policy Research

3./4. OVERSEAS VISITORS AND FELLOWS

Joe Altonji (Northwestern)	Jack Mintz (Toronto)
Alan Auerbach (Berkeley)	Jean-Marc Robin (CREST, INRA, Paris)
David Card (Berkeley)	Yvon Rocaboy (Rennes)
Bronwyn Hall (Berkeley)	John Rust (Yale)
Dietmar Harhoff (ZEW, Mannheim)	James Smith (RAND)
James Heckman (Chicago)	Tom Stoker (MIT)
Mike Hurd (RAND)	Frank Vella (RICE)
Arthur Lewbel (Boston College)	Guglielmo Weber (Padua)
Thomas MaCurdy (Stanford)	Frank Wollak (Stanford)
Thierry Magnac (CREST, INRA, Paris)	

5. SUBSTANTIVE ADVICE AND CONSULTANCY

Attanasio, O., Consultant, Inter-American Development Bank, project on household dynamic decisions

Besley, T., Consultant, European Union

Besley, T., Consultant, OECD

Besley, T., Consultant, World Bank

Dearden, L. and Van Reenen, J., Consultants, Sure Start Evaluation Development Project, June–November 1999

McCrae, J. and Taylor, J., Submission to the House of Commons Select Committee, ‘The future of the contributory principle in social security’, May 1999

Meghir C., Consultant on the impact of water metering on demand to East Anglian Water

Miles, D., Adviser on property values to the Government Valuation Office

Miles, D., Economic Adviser, Merrill Lynch

Miles, D., Special Adviser on monetary policy to the House of Commons Treasury Select Committee

Reed, H., Consultant, Active Ageing project organised by the Policy Innovation Unit at the Cabinet Office

Violante, G., Consultant, Inter-American Development Bank, project on global demographics trends and international capital flows

6. CONFERENCE PAPERS

Banks, J., ‘Household saving and wealth holding’, Unisys Life and Pensions Conference, Nice, June 1999.

- Banks, J., 'Household wealth in the UK: evidence from survey data', US National Research Council Panel Conference on A Research Agenda on New Data for an Aging World, London, September 1999.
- Banks, J., Disney, R. and Smith, Z., 'What can we learn about pension reform from Generational Accounts for the UK?', Treasury/NIESR Conference, London, December 1998; Society of Economic Dynamics Annual Conference, Alghero, June 1999.
- Bloom, N., Bond, S. R. and Van Reenen, J., 'Panel data analysis of investment under uncertainty', Royal Economic Society Conference, Nottingham, March 1999; Workshop on Uncertainty and Factor Demands, Hamburg, July 1999; and Econometric Society European Meeting, Santiago de Compostela, August 1999.
- Blundell, R. W., 'Tax and benefit reform evaluating', EU Conference on Welfare to Work Reforms, Brussels, November 1998.
- Blundell, R. W., 'Evaluating in-work benefit reform', Hicks Lecture, Oxford, February 1999.
- Blundell, R. W., Dearden, L. and Meghir, C., 'Work-related training and earnings', ZEW Conference on Programme Evaluation, June 1999.
- Blundell, R. W. and Powell, J., 'Endogeneity in single index models', North American Meetings of the Econometric Society, Wisconsin, June 1999.
- Blundell, R. W. and Preston, I., 'Consumption inequality and income uncertainty in the UK and US', John D. and Catherine T. MacArthur Foundation Conference on Inequality and Economic Performance, London, May 1999.
- Blundell, R. W. and Stoker, T., 'Aggregation', Handbook of Econometrics Conference, London, December 1998.
- Blundell, R. W. and Windmeijer, F., 'Identifying demand for health resources using waiting times information', European Workshop on Econometrics and Health Economics, Catania, September 1999.
- Bond, S. R., Harhoff, D. and Van Reenen, J., 'Investment, R&D and financial constraints in Britain and Germany', invited paper, Network of Industrial Economists Annual Conference, Oxford, March 1999; Funding Gaps Conference, Warwick, April 1999; and AFSE Annual Conference, Paris, September 1999.
- Bond, S. R., Meghir, C. and Windmeijer, F., 'Productivity, investment and the threat of takeover', joint IFS/University of Bergamo Workshop on Applied Economics, May 1999; TMR Conference on Financial Markets and Restructuring, Milan, May 1999.
- Bond, S. R. and Windmeijer, F., 'Projection estimation for autoregressive panel data models', Econometric Society European Meeting, Santiago de Compostela, August 1999.
- Crawford, I., 'Substitution bias in the RPI: a non-parametric approach', International Conference on the Measurement of Inflation, Cardiff, August–September 1999.
- Dearden, L., 'Qualifications and earnings in Britain: how reliable are conventional OLS estimates of the returns to education?', Royal Economic Society Conference, Nottingham, March 1999.
- Dilnot, A., 'The future welfare burden', Scottish Economic Society Annual Lecture, October 1999.
- Disney, R., 'OECD public pension programmes in crisis: what are the reform options?', invited session, Association for Comparative Economic Studies, ASSA Meetings, New York, January 1999; International Monetary Fund, Washington, April 1999.
- Disney, R., 'Declining public pensions in an era of demographic ageing: will private provision fill the gap?', invited session, European Economic Association, Santiago, September 1999; plenary session, British Society of Population Studies Annual Conference, Dublin, September 1999.
- Disney, R., 'Pension reform in the UK', DIA Seminar, Berlin, September 1999.
- Disney, R. and Gosling A., 'How robust is the public sector wage effect?', Royal Economic Society Conference, Nottingham, March 1999.

- Disney, R., Gosling, A., Machin, S. and McCrae, J., 'The dynamics of union membership in Britain: an analysis using the Family Working Lives Survey', Department of Trade and Industry Conference, London, February 1999.
- Disney, R., Haskel, J. and Heden, Y., 'Exit, entry and survival of establishments in UK manufacturing', Conference on ARD data set, QMW, London, February 1999.
- Disney, R. and Whitehouse, E., 'Retirement incentives', Seminar, HDSP, World Bank, Washington, April 1999.
- Dustmann, C. and Windmeijer, F., 'Wages and the demand for health: a life cycle analysis', International Health Economics Association Meeting, Rotterdam, June 1999.
- Griffith, R., 'Productivity and foreign ownership', ARD conference, London, February 1999; CEPR ERWIT Conference, Bergen, June 1999; Warwick Summer School, Warwick, July 1999; NBER Summer Institute, Boston, July 1999.
- Griffith, R., Redding, S. and Van Reenen, J., 'Mapping the two faces of R&D: productivity growth in a panel of OECD industries', NBER Summer Institute, Boston, July 1999.
- Meghir, C. and Taylor, J., 'Parental investments and adult health outcomes', Eighth European Workshop on Econometrics and Health Economics, Catania, September 1999.
- Redding, S., 'The dynamics of international specialisation', CEPR European Research Workshop in International Trade, Bergen, Norway, June 1999; Tilburg Conference on Dynamics, Economic Growth, and International Trade, Tilburg, July 1999.
- Redding, S., 'Path dependence and endogenous growth', paper accepted for the European Economic Association Conference, Santiago de Compostela, September 1999.
- Reed, H., 'Entering work and the British tax and benefit system', Applied Econometrics Association Conference, Pau, May 1999.
- Shorrocks, A. F., 'Decomposition procedures for distributional analysis: a unified framework based on the Shapley value', invited lecture, Latin American and Caribbean Economic Association Meetings, Buenos Aires, Argentina, October 1998.
- Shorrocks, A. F., 'Analysing poverty', keynote address, Conference of the National Association of Students of Economics of Mexico, Merida, Yucatan, October 1998.
- Shorrocks, A. F. and Davies, J., 'The distribution of wealth', Conference on Intergenerational Transfers, Taxes and the Distribution of Wealth, Uppsala, Sweden, June 1999.
- Tanner, S., 'Micro-modelling of retirement, the UK', NBER International Social Security Conference, Paris, January 1999.
- Tanner, S., 'Who will be a stakeholder, prospects for pension reform?', New Statesman Annual Conference, London, September 1999.
- Violante, G., 'Technology, knowledge and within-group inequality', Conference on Inequality, MacArthur Foundation, May 1999; Conference on Technology, Growth and Human Capital, Hebrew University, July 1999.
- Violante, G., 'Severance payment in search economies with limited bonding', Society of Economic Dynamics and Control, Alghero, June 1999.

7. MEDIA COVERAGE: NEWSPAPER ARTICLES

- Bloom, N., 'A review of the pharmaceutical price regulation scheme', *Script Magazine*, November 1998.
- Chennells, L. and Dilnot, A., 'Everything you'll ever need to know about the row over taxation', *Daily Express*, 3 December 1998.
- Clark, T. and Taylor, J., 'Household economy's day of reckoning', *Guardian*, 11 March 1999.
- Emmerson, C., 'Consultation exercise is not a showstopper', *Financial Times*, 4 November 1998.

Emmerson, C., 'Word of warning to Brown to keep the lid on his war chest', *Financial Times*, 20 September 1999.
 McCrae, J., 'Gainers at bottom of income scale', *Financial Times*, 10 March 1999.

8. MEDIA COVERAGE: RADIO AND TV

National Television

BBC1, 6 O'clock News	A. Dilnot	19.1.99, 14.9.99
BBC1, 9 O'clock News	A. Dilnot	23.10.98, 19.1.99, 28.1.99
BBC1, Breakfast News	A. Dilnot	3.11.98, 1.2.99, 9.3.99, 10.3.99
BBC1, Business Breakfast	J. McCrae	7.7.99
	S. Tanner	4.2.99
	J. Taylor	9.3.99
BBC1, News at One	A. Dilnot	29.1.99, 13.8.99
	S. Tanner	9.3.99
BBC2, Live Budget	A. Dilnot	9.3.99
BBC2, Live Pre-Budget Report	A. Dilnot	3.11.98
BBC2, Money Programme	A. Dilnot	11.10.98
BBC2, Newsnight	A. Dilnot	30.11.98
	J. McCrae	9.3.99, 6.7.99
	J. Van Reenen	17.2.99
BBC2, On the Record	A. Dilnot	18.10.98, 25.10.98
BBC News 24	A. Dilnot	27.1.99
	C. Emmerson	9.3.99
Channel 4, News	A. Dilnot	7.10.98, 3.11.98, 4.3.99, 9.3.99, 16.7.99, 7.9.99
	J. McCrae	18.11.98
Channel 5, News	T. Clark	10.4.99
CNN, Financial News	L. Chennells	26.8.99
ITN, News at One	A. Dilnot	1.3.99

National Radio

BBC Radio 4, 6 O'clock News	A. Dilnot	7.9.99
BBC Radio 4, Analysis	A. Dilnot	9.11.98, 21.12.98, 15.3.99, 21.6.99, 5.7.99, 26.7.99
	A. Duncan	26.1.99
BBC Radio 4, Financial World Tonight	A. Dilnot	23.3.99
BBC Radio 4, Money Box	A. Dilnot	31.10.98
BBC Radio 4, On the Record	A. Dilnot	7.3.99
BBC Radio 4, PM	A. Dilnot	7.10.98, 20.1.99, 6.4.99
	S. Tanner	10.3.99, 4.6.99
BBC Radio 4, 'Pop'	A. Dilnot	23.11.98, 26.11.98
BBC Radio 4, Today	A. Dilnot	15.10.98, 28.11.98, 15.12.98, 19.1.99, 24.1.99, 28.1.99, 25.2.99, 5.3.99, 10.3.99, 15.3.99, 19.4.99, 8.6.99, 15.7.99, 16.8.99
	L. Dearden	31.3.99
	C. Emmerson	28.7.99
	J. McCrae	10.11.98, 1.12.98, 1.3.99, 10.3.99

BBC Radio 4, Week in Westminster	A. Dilnot	21.1.99
BBC Radio 4, Westminster Hour	A. Dilnot	6.12.98, 11.9.99
BBC Radio 4, World at One	A. Dilnot	8.12.98, 8.3.99, 26.4.99, 13.7.99, 14.9.99, 20.9.99
BBC Radio 4, World This Weekend	A. Dilnot	1.11.98
BBC Radio 4, World Tonight	A. Dilnot	7.10.98, 1.2.99, 9.3.99
	S. Tanner	19.11.98
BBC Radio 5, Drive Time	A. Dilnot	7.9.99
BBC Radio 5, Financial World Tonight	S. Tanner	15.12.98
BBC Radio 5, Late Night Live	S. Tanner	24.11.98
BBC Radio 5 Live	I. Crawford	15.12.98
	A. Dilnot	7.10.98, 27.1.99, 28.1.99, 1.2.99, 1.3.99, 9.3.99, 10.3.99
	C. Emmerson	1.2.99, 9.3.99, 7.4.99
	J. McCrae	1.12.98, 7.7.99
BBC Radio 5, Moneycheck	S. Tanner	19.3.99
BBC World Service	A. Dilnot	11.6.99
	L. Blow	
IRN, News	A. Dilnot	27.1.99
Local Radio		
BBC Radio Cleveland	S. Tanner	3.6.99
BBC Radio Scotland	I. Crawford	24.9.99
BBC Radio Solent	H. Reed	6.4.99
BBC Radio Wales	A. Dilnot	1.12.98

9. CONFERENCES

Attanasio, O., Organiser, Summer Institute workshop on Aggregate Implications of Microeconomic Consumption Behaviour, Cambridge, Mass, July 1999

Does it Pay to Work in the Public Sector?	November 1998
Productivity and the Role of Government	November 1998
Pre-Budget Report Briefing	November 1998
Handbook of Econometrics Conference	December 1998
IFS Green Budget	January 1999
International Pension Comparisons	February 1999
Does Entering Work Pay?	March 1999
Pension Reform	March 1999
Post-Budget Briefing	March 1999
Simplifying Tax — Ninth Residential Conference	April 1999
MacArthur Foundation Conference on Inequality	May 1999
IFS 30 th Anniversary Annual Lecture by Gordon Brown	May 1999
Council Tax Benefit	June 1999
R&D and Public Spending	July 1999
Source of Bias in the RPI	July 1999

10. INTERNATIONAL COLLABORATIVE RESEARCH PROJECTS

- Blundell, R. W., NBER Project on Pensions and Retirement.
- Bond, S. R., 'Noisy share prices and the Q model of investment', with J. Cummins (NYU).
- Bond, S. R. and Van Reenen, J., 'R&D, investment and financial constraints in Britain and Germany', with D. Harhoff (ZEW, Mannheim).
- Redding, S., project for the European Commission on the Location of Production in the EU, with T. Venables (LSE), KH. Midelfart-Knarvik (NHH, Bergen, Norway) and H. Overman (LSE).
- Reed, H., 'The role of labour market participation in interpreting movements in aggregate wages', with T. Stoker (MIT).
- Scharf, K., research grant awarded by the Social Sciences and Humanities Research Council of Canada (SSHRC) for research on Democracy and Voluntary Activities; co-investigator (principal investigator: I. Horstmann, University of Western Ontario).
- Tanner, S., National Bureau of Economic Research International Social Security Project.
- Violante, G., 'Severance payments in search economies with limited bonding', with P. Garibaldi (International Monetary Fund).
- Violante, G., 'Technology, knowledge and inequality', with P. Aghion (UCL) and P. Howitt (Ohio State University).
- Violante, G., 'Deunionization, technical change and inequality', with D. Acemoglu (MIT) and P. Aghion (UCL).
- Violante, G., 'Embodied technical change and investment', with J. Cummins (NYU).
- Violante, G., 'Technology, policy, and the inequality–unemployment trade-off', with A. Hornstein (FRB of Richmond) and P. Krusell (University of Rochester).
- Violante, G., 'Tobin's Q, unemployment and the skill premium', with B. Jovanovic (NYU).
- Walker, I., fifteen-country, £1m, TSER project of the returns to education.
- Windmeijer, F., 'Two-part multiple spell models for health care demand', with J. M. C. Santos Silva (ISEG, Lisbon).

11. SUMMARY OF EXTERNAL RELATIONSHIPS, 1990–1 to 1998–9

GROUP B: EXTERNAL RELATIONSHIPS	1990–1 No.	1991–2 No.	1992–3 No.	1993–4 No.	1994–5 No.	1995–6 No.	1996–7 No.	1997–8 No.	1998–9 No.
1. Membership of committees	4	4	6	11	14	27	32	26	24
2. Membership of networks	2	2	4	5	13	15	12	20	22
3./4. Overseas visitors and fellows	4	8	8	9	19	22	22	23	19
5. Substantive advice and consultancy:									
UK	2	2	2	3	4	10	4	6	7
Non-UK	1	1	2	3	3	5	5	5	5
6. Conference papers	50	39	64	51	53	44	29	45	38
7. Newspaper articles	8	12	14	12	9	18	23	18	6
8. Radio and TV	36	160	170	205	184	183	246	176	112
9. Conferences	3	11	15	14	15	12	12	16	15
10. International collaborative research projects	6	6	8	11	15	7	11	18	15

12. QUALIFICATIONS OBTAINED

Banks, J., **Ph.D.** Economics, University College London, November 1998, 'Consumption, saving and demographics: evidence from household data'. External examiner: Martin Browning (Copenhagen).

Emmerson, C., **M.Sc.** Economics, Birkbeck College, University of London, July 1999.

Griffith, R., **Ph.D.** Economics, University of Keele, February 1999, 'Taxes, the location of multinationals and productivity: an empirical analysis using panel data'. External examiner: Alan Auerbach (Berkeley).

Low, H., **Ph.D.** Economics, University College London, October 1998, 'Simulation methods and economic analysis'. External examiner: John Rust (Yale).