

CENTRE FOR THE  
MICROECONOMIC ANALYSIS  
OF PUBLIC POLICY

IFS

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ECONOMIC  
& SOCIAL  
RESEARCH  
COUNCIL

# ANNUAL REPORT

**JANUARY – DECEMBER 2003**



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

# ANNUAL REPORT 2003

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. This Centre was renewed in 2001 and, reflecting the broader remit of research that had developed over the first decade, it was renamed the Centre for the Microeconomic Analysis of **Public Policy, CPP**.

Research at the Centre falls into four broad themes: work, savings, wealth creation and welfare. The first covers the effects of tax policy and welfare programmes on work incentives. The second covers household saving and consumption behaviour, and includes work on pensions. The third covers taxes and business investment, innovation and productivity, and education and training. The fourth covers inequality in the distribution of incomes and expenditures, and broader issues in social welfare.

Alongside its research, the Centre promotes academic dialogue in its subject areas, serves as a training centre and conveys findings to policy-makers 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 calendar year of 2003 and presents an account of ongoing research activity including future developments.

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## 2004

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## **1. EXECUTIVE SUMMARY**

This report covers the calendar year 2003, the second full year of activities of the ESRC Centre for the Microeconomic Analysis of Public Policy at the Institute for Fiscal Studies (IFS). The Centre for Public Policy (CPP) builds on the success of a previous research centre, the Centre for the Microeconomic Analysis of Fiscal Policy, which supported core research at IFS between 1991 and 2001 and was one of the first Designated Research Centres to be funded by the ESRC. As suggested by its title, the CPP covers microeconomic research on a broader range of areas where government policies influence the behaviour of households and firms, including areas such as education and technology, in addition to taxation and spending programmes.

The Centre for Public Policy supports the ESRC's mission objectives of providing high-quality research and training, communicating research findings to a wide range of users and beneficiaries, and promoting public understanding of the social sciences. The Centre provides an outstanding environment in which researchers can develop and disseminate knowledge that contributes to the effectiveness of public policy in the UK, and in which younger researchers can develop the skills needed to meet these objectives.

The high quality of the Centre's research is reflected in the representation of Centre researchers on the editorial teams of leading scientific journals and on the organising committees of leading international conferences, in the flow of influential papers published in top peer-reviewed international journals, and in the visibility and standing of the Centre among leading scholars in related disciplines in the USA and on the continent, as well as in Britain. The range and quality of our Research Fellows and Associates, and other visitors to the Centre, are indicative of our reputation in the international research community.

The relevance of the Centre's work is shown by the high level of interest that it attracts among the policy-making community and the media, reflected, for example, in the attendance at presentations on policy issues by Centre staff and in the popularity of our website. The Centre strives to engage with users of research both within and outside the academic community, and to raise the public profile of our work, not least through our support for the annual IFS Green Budget analysis and commentary on UK budgetary policy.

Research at the Centre is organised around four broad themes covering work, savings, wealth creation and welfare. These programmes contribute high-quality research on ESRC priority themes, notably in the areas of economic performance and development, work and organisations, life course, lifestyles and health, and knowledge, communication and learning. Centre staff also engage in a range of important policy debates.

Research on labour markets covers individual and household decisions on hours of work and participation in the formal labour market, and how work incentives are affected by taxation and welfare programmes. How, for example, is employment affected by initiatives such as the working tax credit, by public support for childcare and by the minimum wage?

Research on issues related to saving includes how individuals save for retirement and to cushion shocks such as unemployment, how household wealth is allocated between housing and different financial assets, and the effects of public policies, such as taxation, welfare benefits and the public provision of pensions, on these decisions. Related research on consumption examines how households allocate expenditures between different commodities and how they value new products, with important implications for the measurement of inflation.

Research on wealth creation covers three broad areas: corporate taxation and investment; innovation and productivity; and education and training. Topics include developments in taxes on company profits and their effects on the behaviour of firms; effects of technology and competition policies on investment in research and development; determinants of productivity growth and the influence of public policies in this area; effects of regional policies on the location of economic activity; participation by individuals in further and higher education; and the changing effects of education on earnings for men and women.

Research on welfare covers measurement of the distribution of wages, income and consumption, trends in inequality and measures of poverty, measurement of the cost of living, and variation in inflation rates across different types of households, such as pensioners and families with children.

Highlights during the period January 2003 – December 2003 covered in this report include new research on collective decision-making within households, which has been applied in our work on the effects of new tax credits on employment participation. Other innovative research includes developments in modelling the general equilibrium effects of human capital policies and work on the non-parametric estimation of models of consumer demand. New software has been circulated that makes matching methods for policy evaluation studies available within the widely-used Stata package.

We have provided influential analyses of policy initiatives such as proposed reforms to the funding of higher education, and of progress towards government objectives to reduce poverty among pensioners and among households with children. Centre researchers also advised the Select Committee on Work and Pensions on its investigation into child poverty in the UK. Important areas of our research programme have attracted co-funding from several government departments. Examples include work on simulation models of labour market participation, which we have provided for the Treasury and the Department for Work and Pensions, and work on the effects of teenage pregnancies on later life outcomes, supported by the Treasury's Evidence Based Policy Fund. Other areas have been supported by international organisations such as the International Monetary Fund (research on the effects of the recent Russian income tax reform) and by the Bank of England (research on the labour market impact of the new tax credits, and research on company investment).

We continue to attach high priority to our role in promoting public understanding of social science, and in particular to informing wider debates on public policy issues. The Centre contributes a wealth of accessible material to the IFS website, which attracts around 30,000 visitors per month. In the last year, we have added a new online model that allows users to locate where they stand in the income distribution. We have also produced a range of concise, online Briefing Notes on diverse issues, including pension reform, income inequality, the UK productivity gap, and corporation tax reform.

One important area where we continue to expand our research programme is the implications of an ageing population. Centre researchers participate in an EU-funded Research and Training Network on the Economics of Ageing, and in October 2003 we organised, hosted and co-funded the third workshop of this international network. This complements our longstanding interest in issues related to pensions and retirement, and our involvement in the interdisciplinary group collecting and analysing new longitudinal data on the health, economic position and quality of life of older people (English Longitudinal Study of Ageing).

The remainder of this report describes the activities of the Centre for Public Policy in the period January 2003 – December 2003 in more detail. We believe that the Centre has built on the foundation provided by previous ESRC support for policy-oriented microeconomic

research at the Institute for Fiscal Studies, consolidated its reputation in the last year, and we look forward to developing this agenda still further in the coming period.

## **2. INTRODUCTION**

This report covers our activities during 2003. This was the second full year of the ESRC Centre for Public Policy, which replaced the previous ESRC Centre for Fiscal Policy in October 2001, and continues the successful ESRC Centre support since 1991 for policy-oriented empirical microeconomic research at the Institute for Fiscal Studies. The current Centre has a broader remit than its predecessor, covering the economic analysis of all public policies that affect households and firms. Some examples of this wider coverage that were prominent over the last year include our analysis of proposals to reform the funding of higher education, of trends in child poverty and pensioner poverty, and of the effects of competition policies on innovation and productivity growth. Research at the Centre remains deeply rooted in rigorous empirical analysis and in applying and developing appropriate methods for such research.

During the last year, the Centre has consolidated its position as an influential participant in UK public policy debates, and maintained its high profile in the international academic research community. All the senior staff at IFS are actively involved in the management of the ESRC Centre for Public Policy. This provides a highly effective framework for the development and monitoring of new research, and for the training and development of younger researchers.

The Centre aims to produce rigorous research findings in areas that are directly relevant to the design and evaluation of public policies. To achieve this, we engage in regular discussion with the policy community, helped by the long-standing reputation of IFS for independent and authoritative analysis. We draw on the expertise of leading academics in the UK and abroad, in economics and related fields. Many of these play an active role in the development of research areas, as Research Associates or Research Fellows of the Centre. We host events that include both high-profile academic seminars addressed by top international researchers, and conferences on policy issues that attract interest from a wide range of research users, which is reflected in their coverage in the media. We also present our research findings at major international conferences and at academic seminars worldwide. In these ways we strive to maintain both the policy relevance of our research and our leading position in the international research community.

The research programme of the Centre is organised in four broad themes: work, including the labour market impacts of tax and welfare policies; savings, including life-cycle consumption behaviour and issues related to pensions and retirement; wealth creation, including investment and innovation by firms and education issues; and welfare, including analysis of inequality and poverty, welfare measurement and the cost of living. The Centre's work has close links with other research activities based at IFS, or in which IFS is a partner, including the Centre for Economic Research on Ageing (CERA), the Centre for the Economics of Education (CEE), the Centre for the Evaluation of Development Policies (EDePo), the Centre for Microdata Methods and Practice (cemmap) and the English Longitudinal Study of Ageing (ELSA).

The remainder of this report provides more detail of the Centre's output and its contributions to the policy debate.

### **3. OBJECTIVES**

The objectives of the Centre for the Microeconomic Analysis of Public Policy remain those set at its inception. The principal aim is to inform debate on the microeconomic effects of public policies, addressing the growing need for sound evaluation and careful analysis of public policy. To do this effectively, the objectives include:

- (i) development and application of cutting-edge microeconomic and microeconometric research methods to analyse the scope for successful policy intervention and to evaluate past and proposed policy changes;
- (ii) provision of highly developed network access to firm-level and household-level databases, with detailed simulation models of how the fiscal system affects individuals and firms;
- (iii) collaboration with leading researchers in related disciplines in other Centres and elsewhere in the UK and abroad;
- (iv) provision of expert training and supervision for younger researchers, giving them close links to the policy arena;
- (v) active dissemination of research findings to a wide range of users in the academic and policy communities, and engagement in the policy debate.

## 4. MAIN OUTCOMES OF THE YEAR

This report of the ESRC Centre for the Microeconomic Analysis of Public Policy covers the year from January 2003 to December 2003. This was the second full year of the Centre's activities, extending the work undertaken by the earlier ESRC Centre for Fiscal Policy at the Institute for Fiscal Studies.

There have been a number of major research findings. For example, we have developed new models of labour market participation, and analysed the effects of the new child tax credit and working tax credit. We have exploited detailed work on measurement issues to shed new light on the development of consumption inequality in the USA. We have used recent British Household Panel Survey data to describe changes in the asset holdings of older people in the second half of the 1990s. We have obtained new findings on the effects of the abolition of dividend tax credits for UK pension funds in July 1997. We have studied sectoral trends in productivity differences between the UK and the USA, and obtained new results on the effects of product market competition on productivity growth. We have provided a detailed analysis of alternative proposals for the reform of higher education funding, and obtained important new evidence on the effects of credit constraints on individuals' decisions to remain in full-time education beyond compulsory schooling and to participate in higher education. We have provided detailed analyses of trends in poverty among pensioners and among households with children, relating these to developments in means-tested transfers. We have developed non-parametric methods for the characteristics model of consumer demands and for productivity measurement, and analysed the distributional implications of a tax on fatty foods. New software has been made available to apply propensity score matching methods for policy evaluation studies within Stata.

Researchers at the Centre continue to aim for the highest academic standards of rigorous research on issues of direct relevance to public policy, to develop the analytical methods required for this research programme, to communicate the findings of their research to a wide range of interested parties and to draw on their experience to engage in policy debates. This is illustrated by the diversity of published outputs that the Centre has produced, ranging from scientific publications in leading academic journals, through surveys of particular areas and issues aimed at a wider audience, to less technical papers and newspaper articles on particular policy questions. Examples of the first include papers on household saving published in the *American Economic Review* and the *Quarterly Journal of Economics*, papers on wage growth published in the *American Economic Review*, and papers on early retirement and on child poverty published in the *Economic Journal*. Examples of publications aimed at a wider audience include IFS Commentaries on pensioner poverty and on higher education funding.

As this indicates, we attach high priority to our role in informing and engaging in the policy debate. In the last year, Centre researchers and resources have again made an important contribution to the Green Budget analysis, published by the Institute for Fiscal Studies in advance of the government's Budget Statement. Data resources, simulation models and research findings developed at the Centre provide the foundation for this high-profile commentary and analysis of UK fiscal policy issues.

The last year has seen many other examples of our involvement in specific policy debates. Prominent among these have been our analysis of proposals for reforming the funding of higher education, our response to the December 2002 pensions Green Paper and our work on child poverty and pensioner poverty. Online Briefing Notes have also been written on the new tax credits for low earners, families with children and pensioners. Centre researchers have assisted the House of Commons Select Committees on Work and Pensions and on Culture, Media and Sport and the European Commission Directorate General for Employment and

Social Affairs, and undertaken specific research projects for HM Treasury, the Inland Revenue, the Department for Work and Pensions, the Department for Education and Skills and the Bank of England. We have continued to expand the resources available on our website, which now include an online routine for individuals to find where they are located in the income distribution.

Much of our research continues to be comparative and/or collaborative in nature, involving leading researchers in economics and related fields, both within the UK and internationally. Examples include our involvement with the interdisciplinary group collecting and analysing new panel data on older individuals (the English Longitudinal Study of Ageing) and with the interdisciplinary group collecting data for the evaluation of Educational Maintenance Allowances. International collaborations include work on international comparisons of social security and pension systems organised by the US National Bureau of Economic Research (NBER), and European Union Research and Training Networks on the Economics of Ageing and on Productivity and Innovation. A new project assessing the recent Russian 'flat-tax' reform has begun in collaboration with the International Monetary Fund.

Our international links are strengthened by our network of International Research Associates and by our active programme of visitors to the Centre. Centre researchers participated in major international conferences such as the Econometric Society European Meeting (Stockholm, August 2003), the European Economic Association Congress (Stockholm, August 2003), the NBER Summer Institute (Cambridge MA, July 2003) and several other meetings run by the NBER. In October 2003, the Centre hosted the third meeting of the RTN project on the Economics of Ageing. Distinguished visitors to the Centre during 2003 included Philippe Aghion (Harvard), Andrew Bernard (Dartmouth), James Heckman (Chicago), Arthur Lewbel (Boston College), Thierry Magnac (CREST, INRA, Paris), Jacques Mairesse (CREST, Paris), Robert Moffitt (Johns Hopkins) and Jean-Marc Robin (CREST, INRA, Paris), as well as others from among our Research Associates and Fellows.

Centre research is organised around the four broad themes of work, savings, wealth creation and welfare. Within each of these themes, there are a number of specific research programmes. The main outcomes of the research in each of these programmes are presented in more detail in Section 7 below. Here, we summarise briefly some of the main achievements.

Empirical research on labour market responses to tax and benefit reforms has focused on the determinants of labour market participation and transitions between different labour market states. Models have been developed that relate changes in work status to financial incentives, childcare costs and take-up of means-tested benefits and that allow for joint decisions within married or cohabiting couples. Versions have been made available for use in policy analysis at HM Treasury and the Department for Work and Pensions. Research co-funded by the Bank of England has analysed the effects of the new child tax credit and working tax credit, and extended our simulation models of labour supply decisions to allow for interactions with the demand for labour of different skill groups. Other work has assessed the medium-term effects of the New Deal for Young People on employment and wages. We have also set up our tax and benefit microsimulation model, TAXBEN, to use longitudinal data from the British Household Panel Survey.

In the area of savings, we have developed numerical solution methods for life-cycle behavioural models that incorporate fixed transaction costs associated with house purchases and fixed costs of working. Detailed work on the measurement of consumption in the US Consumer Expenditure Survey has led to new findings on the patterns of consumption inequality, and helped to reconcile these with the permanent income hypothesis. Empirical research on wealth holdings has used British Household Panel Survey data to study levels of

and changes in the asset holdings of older people, noting differences between those with and without private pensions, and highlighting the important role played by capital gains on existing assets. Related work has investigated equity holdings by UK households in a comparative perspective, and developed models that consider the insurance role of housing wealth in the presence of high house price volatility to explain the importance of housing in the wealth portfolios of UK households. Research on pensions and retirement has looked at the effects of the new pension credit, which extends the importance of means-tested support, and analysed proposals in the government's December 2002 pensions Green Paper. Other work has studied the impact of ill health on retirement decisions, accounting for problems with self-reported measures of general health status.

Research on wealth creation covers business taxation, investment, innovation and productivity growth, as well as issues in education including government policies, individual participation decisions and subsequent returns. Work on business taxation has analysed recent trends in developed countries and provided up-to-date measures of effective corporate tax rates that were requested by HM Treasury and used in its Pre-Budget Report analysis. Other work has investigated the effects of the abolition of dividend tax credits for UK pension funds, including those on institutions' portfolio allocations and on companies' share prices, dividend payments and investment spending. Research on investment, co-funded by the Bank of England, has analysed firm-level measures of uncertainty. Other work has focused on the financial behaviour of innovative firms.

Research on productivity growth has considered the effects of product market competition and the threat of entry, emphasising different implications of product market liberalisation for firms that were previously more efficient or less efficient. Related work has emphasised the importance of differences between sectors in measures of the 'productivity gap' between the UK and the USA, with evidence of a widening gap in important service sectors such as retailing and finance. Work on R&D has investigated the importance of local spillover benefits for the location of firms' R&D activities. Other work has found evidence of significant and persistent regional differences in the relative wages of skilled and unskilled workers in the UK, and related these to explanations suggested in the international trade literature. These areas of our research programme will benefit from the appointment of Rachel Griffith as an ESRC AIM Fellow.

Our work on individuals' decisions to participate in post-compulsory education has considered both choices at age 16 and participation in higher education. In both cases, we seek to identify the effects of short-term credit constraints separately from longer-term family background and ability influences. Results indicate some effects of credit constraints on choices at 16, but not on later decisions to enter higher education programmes. Related work evaluating Education Maintenance Allowances suggests that these financial incentives can increase participation in post-compulsory schooling, but have no longer-run effects on participation in higher education. A major research programme on the returns to education indicates the presence of substantially higher wages for individuals who stay at school beyond 16 and for those who participate in higher education; these returns are also found for individuals whose choices are 'marginal' in the sense that they are most likely to be affected by policy interventions. Whilst we generally find high returns to academic qualifications, we also find evidence of low or negative returns to some vocational qualifications, such as level 2 National Vocational Qualifications, particularly when obtained through government rather than employer-based training. Our analysis of alternative proposals for higher education funding highlights the regressive nature of across-the-board public support for university students, given that graduates are found disproportionately towards the top of the income distribution.

Research on inequality and social welfare has considered progress towards government targets to reduce poverty among pensioners and among households with children. Partly as a result of recent large increases in means-tested transfers, and partly because of growing prosperity among newly retiring cohorts, we find that poverty among pensioners in general is now no higher than that among non-pensioners. Nevertheless, some groups, such as older, single pensioners, do remain disproportionately poor. Research on child poverty has considered the implications of the government's targets for rates of child tax credit. Centre researchers have assisted the House of Commons Work and Pensions Select Committee with its investigation into child poverty, and joined the Department for Work and Pensions technical experts group which advised on the measurement of child poverty. Other research, supported by the Treasury's Evidence-Based Policy Fund, has analysed the effects of teenage pregnancy on later life outcomes. This work highlights the importance of systematic differences in unobserved characteristics between teenage mothers and comparison groups, suggesting that teenage motherhood should be seen as a symptom of prior disadvantage rather than a direct cause of future disadvantage.

Research on welfare measurement and the cost of living has considered the implications of taxing fatty foods. Data from the National Food Survey indicate that rich and poor individuals consume similar quantities of fats and other 'bad' nutrients, implying that the poor spend a higher proportion of their incomes on such foodstuffs, so that a 'fat tax' would be regressive. Other work has developed non-parametric methods to obtain tight bounds on the increase in consumer welfare that results from the introduction of a new product, without relying on functional form assumptions to extrapolate from estimated demand curves. In related research, we have extended our work on non-parametric, axiomatic methods to the characteristics model of consumer demands, and used this approach to derive measures of productivity growth in firms and organisations that do not rely on functional form assumptions about production or cost functions.

## **5. PROGRESS TOWARDS OBJECTIVES**

The research described above, and in more detail in Section 7, illustrates substantial progress towards our objective of developing and applying cutting-edge microeconomic and microeconometric research methods to policy questions and policy evaluations. Important methodological developments include our work on collective decision-making within households, general equilibrium modelling of labour market programmes and human capital policies more generally, and nonparametric methods for models of consumer demand. These are described in more detail in Appendix 1. Important applications include our work on the labour market effects of new tax credits in the UK, our analysis of trends in consumption inequality in the USA, and our work on individual decisions to participate in post-compulsory schooling and in higher education.

Advances in our simulation models in the last year have included the implementation of our tax and benefit microsimulation program, TAXBEN, on longitudinal data from the British Household Panel Survey. This will allow us to track the dynamic effects of tax and benefit changes on individuals and households over an extended period of time, which is simply not possible without the use of panel data. Other improvements to TAXBEN include a more detailed treatment of disability benefits. Our behavioural microsimulation models of the labour market impacts of tax credits have been extended to incorporate interactions between labour supply and labour demand effects.

We continue to collaborate with a wide range of leading UK and international researchers, in economics and related fields. Examples are our involvement with the interdisciplinary group of researchers headed by Professor Sir Michael Marmot (UCL) working on the English Longitudinal Study of Ageing, our analysis of policies for employment retention and advancement through our participation on an interdisciplinary advisory board set up the Cabinet Office to review such policies, and our collaboration with economists at the International Monetary Fund to study the recent income tax reform in Russia. Other leading international scholars who have played a significant role in the development of our research programme over the last year include Philippe Aghion (Harvard), Martin Browning (Copenhagen), James Heckman (Chicago), Luigi Pistaferri (Stanford) and James Smith (RAND).

The Centre provides high-quality training for younger researchers in empirical microeconomic research focused on public policy issues, making a significant contribution to the UK capacity for social science research in this area. Junior researchers learn research skills by working closely with senior staff in small teams on specific research projects. They benefit from contact with the extensive range of visitors to the Centre. Presentational skills are developed by encouraging the active participation of younger researchers in academic seminars and conferences. They also have exceptional opportunities to present findings to broader audiences, including politicians, civil servants and the media. This development is supplemented where appropriate by study or research for higher degrees in Economics, and by formal training courses in software, media or management skills.

Our progress towards communicating our research findings to a wide range of users is described in more detail in Section 9 of this report. We have produced Commentaries and Briefing Notes on a range of important policy issues, including poverty trends and the effects of new tax credits for children, low earners, and pensioners. The Centre provides a wealth of material for the IFS website, including online simulation models. The Centre also provides vital support and analysis for the IFS Green Budget, which examines a wide range of policy options in the run-up to the government's annual Budget Statement. Prominent among the policy debates in which Centre researchers have engaged over the last year are the funding of

higher education, the reform of the pension system, and the UK's technology and productivity performance.

As we progress towards these objectives, the Centre for Public Policy makes a significant contribution to the ESRC mission aims of advancing and disseminating knowledge, promoting public understanding of social science, and contributing to the effectiveness of public policy and the economic competitiveness of the United Kingdom. Our research programme has contributed substantive knowledge on important issues, such as the age at which education decisions are most likely to be affected by credit constraints, and the patterns of financial wealth holdings among older people in Britain. Improved research methods have been developed and disseminated – for example, the use of matching methods for programme evaluation studies. The Centre provides training for postgraduate students and an outstanding environment for the development of younger researchers. Centre staff collaborate actively with leading researchers both in the UK and internationally, supported by our networks of Research Associates and Research Fellows, our programme of visitors and our participation in major conferences. We place particular emphasis on the ESRC's objectives of improving communication with non-academic research users and raising the visibility and standing of UK social science. Further evidence of our progress in these areas is provided by our relationships with government departments, parliamentary committees and the media, which are described in Section 9 below.

## **6. ISSUES AND PROBLEMS**

There are no significant problems or issues that we wish to raise. However, it is worth noting that the leverage that ESRC funding has given us, whereby co-funding now covers 70% of our research income, places particular need for attention on the management of co-funded projects. Typically, we try to raise co-funding on most of the policy issues we analyse under the ESRC Centre for Public Policy. This co-funding is typically short-term, either from a government department or from a research foundation. This is a very positive aspect of ESRC Centre funding and brings us closer to the policy-making process without losing our treasured independence. Nonetheless, it highlights the careful management that is required for projects with more than one sponsor, both in terms of fair attribution of outputs and in terms of the time taken in reporting and answering to funders.

## 7. REPORT ON MAIN PROGRAMMES

This section describes the research of the Centre over the period. It summarises the main findings according to the four broad themes, it provides the names of Centre researchers who can be contacted regarding this research and it also presents some selected references. A full list of publications can be found in Appendix 4.

### Theme A. WORK: PUBLIC POLICY AND LABOUR MARKETS

#### 1. Labour Market Responses to Tax and Benefit Reforms and Other Policy Interventions

##### *The Dynamics of Labour Market Responses to Policy Reform*

Funding from the ESRC Centre has been central in the completion and deployment of a dynamic model of how changes in the tax and benefit system affect movements into and out of the labour market (labour market entry and exit). We were commissioned by HM Treasury and the Department for Work and Pensions (DWP) to build a model of labour market transitions using data from the Labour Force Survey's quarterly panel and the Family Resources Survey operating on the IFS tax and benefit model, TAXBEN. This model marks a significant advance on existing 'cross-sectional' models of labour supply, by relating changes in work status to changes in the financial incentives facing individuals and families, taking account of all the salient features of the tax and benefit system, childcare use and costs, and the incomplete take-up of means-tested benefits. The model also incorporates a sophisticated treatment of each partner's labour supply within married and cohabiting couples. Centre researchers played a large role in helping Treasury and DWP programmers to implement their own versions of this model for policy analysis and evaluation. We are currently using Centre resources to support a follow-up project funded by the DWP which is explicitly modelling the labour market decisions and the particular set of constraints faced by disabled people of working age in the UK. This interdisciplinary work will be of immense value in supplementing an evaluation of piloted reforms to incapacity benefit which we have also just begun to undertake for the DWP in association with the Policy Studies Institute and the National Centre for Social Research.

Myck, M. and Reed, H. (2003), 'Labour Supply Estimation Project Report 2: A dynamic model of labour market transitions and work incentives', unpublished report to HM Treasury, Inland Revenue and Department for Work and Pensions.

Myck, M. and Reed, H. (2003), 'Labour Supply Estimation Project Report 3: Model of labour market transitions – estimation and results', unpublished report to HM Treasury, Inland Revenue and Department for Work and Pensions.

##### *The Labour Market Impact of the New Tax Credits*

ESRC Centre support has played a vital role in research on the labour market impact of the 'new tax credits' – the child tax credit (CTC) and working tax credit (WTC) – which IFS undertook with co-funding from the Bank of England. The CTC marks a major change in the system of transfer support for children in low-income families, combining the child payments in income support, the working families' tax credit (WFTC) and the children's tax credit into a 'seamless bridge' of support for families both in and out of work. The WTC replaces the WFTC as the main source of financial support for working families on low incomes. Researchers estimated a structural model of labour supply with a full joint specification for couples, controlling for benefit take-up, childcare use and fixed costs of working. For the first time, the model was extended to childless single people and couples, as the WTC provides in-

work support to some childless working people for the first time in the UK. The results from this modelling will be published in a Bank of England report during the first half of 2004.

Blundell, R., Brewer, M., Duncan, A., Reed, H. and Shephard, A. (2003), 'The employment impact of recent labour market reforms', unpublished report to the Bank of England (due to be published later in 2004 in an edited form).

Brewer, M., Duncan, A., Shephard, A. and José Suárez, M. (2003), 'Did working families tax credit work? Analysing the impact of in-work support on labour supply and programme participation', Inland Revenue Working Paper 2.

### *Putting Policy Reform in the Public Eye*

Centre funding has allowed us continually to assess, discuss and comment on changes to personal taxes and benefits, to undertake high-quality analysis of these reforms and to help promote public understanding and debate of government policies. During 2003, IFS researchers produced Commentaries and Briefing Notes on the impact of all the government's new tax credit policies – the child tax credit, working tax credit and the pension credit. We also maintained and expanded research on trends in child poverty and the impact of the new tax credits, and a complete survey of trends in the tax and benefit system since the 1970s. The Centre also funded research assessing the medium-term effect of the New Deal for Young People on the employment rates of 18- to 24-year-olds and on their wage levels which was published in *The Labour Market under New Labour*, edited by Richard Dickens, Paul Gregg and Jonathan Wadsworth.

Blundell, R., Reed, H., Shephard, A. and Van Reenen, J. (2003), 'The impact of the New Deal on the labour market: a four year assessment', in R. Dickens, P. Gregg and J. Wadsworth (eds), *The Labour Market under New Labour: The State of Working Britain*, 2<sup>nd</sup> edition, Basingstoke: Palgrave Macmillan.

Brewer, M. (2003), *The New Tax Credits*, IFS Briefing Note 35.

### *Tax Reform in Russia*

During the last year, we have begun work on a new initiative to analyse the effects of a major income tax reform introduced in Russia in 2001. We are collaborating with researchers at the International Monetary Fund to provide the first evaluation of this reform using evidence from micro data.

The Russian tax reform replaced a progressive income tax structure, with three tax brackets and marginal rates of 12%, 20% and 30%, by a flat-rate tax system for earned income. The new tax rate of 13% is only marginally higher than the lowest tax rate under the previous system. This reform thus cut tax rates for those individuals previously in one of the higher tax brackets, and left the tax rate virtually unchanged for those in the lowest bracket. Nevertheless income tax revenue has grown strongly since the reform. This apparent success has led Slovakia and Ukraine to adopt similar flat-rate income taxes, and other countries such as Poland and Belarus are currently considering similar reforms.

The main aims of our research are to investigate whether this strong performance of tax revenues is a direct result of the reformed rate structure, and, if so, the extent to which this reflects encouragement of labour supply or the discouragement of tax evasion. Preliminary findings suggest serious doubts about any causal relationship between the tax reform and the growth of revenues. Much of the increase in tax payments appears to stem from individuals whose tax rate was not reduced by the reform. If this finding proves to be robust, it will have important implications for other countries contemplating similar flat-tax reforms, particularly if they expect to boost their tax revenues as a result.

*Contacts: Stuart Adam, Mike Brewer, Alexander Klemm, Howard Reed, Andrew Shephard*

## **2. Microsimulation of Taxes and Benefits**

The IFS tax and benefit microsimulation model, TAXBEN, has been going from strength to strength with the support that the ESRC Centre provides for detailed data work which would otherwise be much harder to do. The main advance this year has been an implementation of TAXBEN on data from the British Household Panel Survey (BHPS). By December 2003, a prototype version was running on a single wave of BHPS data, and we will implement TAXBEN on all waves by the end of 2004. Running TAXBEN on longitudinal data from the BHPS allows us to look at the dynamic effects of tax, benefit and tax credit policies on individuals over a number of years in a way that is simply not possible with cross-sectional data-sets such as the Family Resources Survey. TAXBEN has also benefited from much improved modelling of in-work and out-of-work disability benefits for an analysis of disabled men and women's labour supply, funded in part by the DWP.

Meanwhile, our behavioural microsimulation models for labour supply continue to improve. Centre funding helped to expand the remit of work co-funded by the Bank of England which looked at the labour market impact of the new tax credits introduced in 2003. For the first time on UK data, we were able to develop a model of the interaction between labour supply and labour demand in the economy for different skill groups. This was combined with parameters from the Bank of England's macro-model of labour demand to enable us to simulate how our estimates of the labour supply response to the new tax credits were affected by different assumptions about short-run and long-run demand elasticities in the labour market. We have also been active in designing new models for estimating the dynamic effects of policies such as the new tax credits (and the complex set of intertemporal incentives they produce) on transitions into and out of work over the life cycle. We hope to estimate versions of these models on UK panel data in 2004.

Brewer, M. (2003), 'Estimating models of benefit take-up', Inland Revenue Working Paper 1b.

Myck, M. and Reed, H. (forthcoming), *Including the Disabled in a Dynamic Model of Labour Supply and Labour Market Transitions*, Department for Work and Pensions Research Report.

*Contacts: Mike Brewer, Alan Duncan, Howard Reed, Andrew Shephard*

## **Theme B. SAVINGS: ASSETS, CONSUMPTION, AGEING AND PENSIONS**

### **3. Saving and Consumption Behaviour**

The work at the Centre on life-cycle consumption behaviour during 2003 has focused on three different areas. First, building on our earlier work on numerical solutions of life-cycle models, we have started to develop solution methods for much more complex models, where non-convexities such as fixed transaction costs play an important role. The main applications of this work will be in the study of housing decisions and labour supply decisions. Secondly, we have continued the study of consumption inequality and how that evolves over the life cycle. We have studied databases for both the USA and the UK. The work on the USA has been particularly productive and has uncovered some important data problems in the Consumer Expenditure Survey. Researchers at the Centre were the first to identify these problems and to propose a solution. This research, which has received wide attention in the USA, is discussed in more detail in subsection 9 under Theme D below. Thirdly, we have looked at possible wealth effects on consumption, with particular emphasis on the recent housing boom.

Attanasio, O., Battistin, E. and Ichimura, H. (forthcoming), 'What really happened to consumption inequality in the US?', NBER Working Paper.

***Contacts: Orazio Attanasio, Erich Battistin***

#### **4. Wealth Holding: Portfolios and Housing**

Research into household portfolios and the role of housing wealth has continued this year. In particular, we have looked at further descriptive evidence on the degree to which wealth levels and different types of asset holding vary across the population. The analysis has addressed three broad issues – the asset holdings of the older population, the way in which share ownership in Britain compares with that in other European countries, and the way in which housing wealth varies over the life cycle and is correlated with other asset holdings.

With regard to the older population, we provided new evidence on the financial wealth levels of older people in Britain and how these have changed over the period 1995 to 2000. The older population is of particular interest from a policy point of view, given the current importance of understanding individual provision of resources for retirement in the context of the ageing population and movement towards individual provision within the Welfare State. Even the limited information we provided has previously been unavailable in the British policy debate surrounding the adequacy of financial wealth and private saving for retirement.

The older population has more wealth in 2000 than in 1995, but evidence from the two waves of panel data in the BHPS indicates that increases in wealth for older people at the cross-sectional level also reflect cohort effects, capital gains and mortality effects. Controlling for these, the data show some evidence of decumulation of financial wealth for certain groups after their retirement, especially by those without private pensions. Those who are retired and have private pensions tended to have much more financial wealth than those without private pensions, tended to decumulate less and also received higher capital gains and returns over the period. Indeed, over this period, when stock market returns were high, controlling for macroeconomic effects, which affect different households differently according to initial wealth, is particularly important since capital gains are essentially an omitted component of income when measuring resources across the period. We showed differences in patterns of wealth accumulation according to how you control for these which suggest that, at the very least, there was an important role for 'passive' saving in determining the wealth accumulation of the older population that is hard to pick up without such detailed information on both changes in wealth and changes in income. High returns might affect active saving behaviour, and passive accumulation certainly impacts on how we measure the saving rate since capital gains are typically omitted from measures of income in the denominator of such a measure.

Centre research continued to provide empirical evidence on the portfolios of UK households. As part of an international comparative exercise, we argued that, in this respect, the UK shares many features with other European countries. Within the group of financial assets, there are wide differences in ownership rates between different households and relatively low levels of portfolio diversification, in terms of both the proportion of households holding equity directly and the portfolio share of directly-held equity. Age, income and education are important factors in describing the level of financial wealth that households have and their degree of portfolio diversification. We estimated age and wealth profiles for the ownership of risky assets and for portfolio shares, conditional on owning shares, and showed that, as in other countries, and the USA and Italy in particular, the ownership profile displays more of a pronounced 'hump shape' across age groups than does the conditional share. Nevertheless,

there are also important dimensions in which the UK and other countries differ, primarily because of changes in the institutional structure over the last 20 years.

Research also showed that housing wealth and pension wealth are strongly positively correlated with financial wealth for the elderly and that changes in housing wealth swamp other changes in wealth over recent years. Whilst the issue of housing as a potential source of retirement resources is becoming one of some policy interest, the analysis of housing is far from straightforward due to the consumption, investment and insurance roles of housing wealth. Picking up on this theme, the investigation of possible explanations for the importance of housing in UK portfolios continued, focusing in particular on the role of volatile house prices. We developed further our model of the insurance role of housing wealth in early and mid life, and extended the empirical testing to show that predictions of the model hold up when looking across regions that have experienced differing house price volatility within both the UK and the USA.

Banks, J., Smith, Z. and Wakefield, M. (2003), 'Financial wealth and wealth dynamics among the over fifties in Britain, 1995–2000', conference paper for Royal Economic Society 2003 Conference Special Session on Income and Wealth in Later Life.

Banks, J., Blundell, R. and Smith, J. P. (2003), 'Wealth portfolios in the US and the UK', in D. Wise (ed.), *Perspectives in the Economics of Ageing*, Chicago University Press.

Banks, J., Blundell, R., Smith, J. and Smith, Z. (2003), 'House price volatility and home ownership', paper presented at EU-RTN conference on Economics of Ageing, Naples, April.

**Contacts: James Banks, Zoë Oldfield**

## **5. Pensions and Retirement**

Centre researchers have continued to contribute to the debate on potential reform of the UK pension system. As well as looking at broader reform options, a response to the government's consultation on its December 2002 pensions Green Paper was written. The analysis welcomed the proposed simplification of the pensions tax system but pointed out that greater simplicity and improved information might not necessarily lead to individuals choosing to save more for their retirement. While some people will lose out from the proposed simplifications, these are individuals who are unlikely to be considered to be under-saving for their retirement. The research also pointed out that the simplifying reforms could have gone further by capping the size of the tax-free lump sum rather than the overall size of an individual's pension fund and by removing the annual test against earnings which would allow all individuals to contribute up to £200,000 a year to a private pension.

Centre researchers also assessed the impact of the pension credit, which from October 2003 extended means-testing further up the pensioner income distribution. With regard to the government's objectives of giving more resources to low- to middle-income pensioners, rewarding pensioners for having saved in the past and encouraging people of working age to save for the future, the policy is likely to achieve the first two but not the third.

The panel nature of the BHPS was exploited in Centre research examining the link between ill health and the timing of retirement. This research dealt with the issue that the correlation between work status and the self-reported health measures of survey data could be exaggerated if people report ill health as a means to justify not working and/or receiving disability benefits. A health stock measure was therefore constructed by using more objective, specific health measures to cleanse the effects of reporting behaviour out of the general health measure. This constructed variable was then used in a retirement model and the results indicated that health is a significant determinant of retirement behaviour. When the model was used to examine the effect of a 1995 reform to disability benefits, there was no strong

evidence that the relationship between health and retirement had changed after the reform. This research could be extended in the future to examine more thoroughly the relationships between the effects of health and of financial incentives on the timing of retirement.

International collaborative work looking at the role of economic incentives in explaining retirement behaviour continued. Previously, this work had modelled the probability of retirement in terms of the incentives underlying the individual's pension plan as well as other socio-economic factors, and then predicted what would happen to retirement behaviour under different reforms. For example, it was predicted that increasing the state pension age by three years would increase retirement ages. This analysis was extended to look at the public finance implications of each reform. Increasing the state pension age would reduce spending on state pensions, although this would be partially offset by higher expenditure on income support and disability benefits. The overall reduction in spending is almost entirely a direct effect of the increase in the state pension age, rather than being due to individuals choosing to retire later. In contrast, the increase in government revenues predicted due to the increase in the state pension age was almost entirely driven by the predicted increase in retirement ages. Looking forward, further international collaborative work in this area will examine changes in the generosity of state pension systems and the extent to which these have been associated with different measures of well-being of the elderly.

Emmerson, C. and Wakefield, M. (2003), *Achieving Simplicity, Security and Choice in Retirement? An Assessment of the Government's Proposed Pensions Reforms*, IFS Briefing Note 36.

Brewer, M. and Emmerson, C. (2003), *Two Cheers for the Pension Credit?*, IFS Briefing Note 39.

Blundell, R., Meghir, C. and Smith, S. (forthcoming), 'Pension incentives and the pattern of retirement in the United Kingdom', in J. Gruber and D. A. Wise (eds), *Social Security Programs and Retirement around the World: Micro-Estimation*, University of Chicago Press.

Disney, R., Emmerson, C. and Wakefield, M. (2003), 'Ill health and retirement in Britain: a panel data based analysis', IFS Working Paper 03/02.

Banks, J., Blundell, R., Emmerson, C. and Oldfield, Z. (2003), 'Social security and the well-being of the elderly in the UK', paper presented at the NBER conference, Nafplion, Greece, 18–20 September 2003.

**Contacts: Carl Emmerson, Matthew Wakefield**

## **Theme C. WEALTH CREATION: INVESTMENT, INNOVATION AND HUMAN CAPITAL**

### **6. Taxes and Investment**

#### *Company Taxation*

Researchers at the Centre have continued to work on a range of projects related to corporate taxation.

Drawing on earlier work funded by the Centre, Steve Bond, Alex Klemm and Research Fellow Michael Devereux (Warwick) were able to provide HM Treasury with updated measures of effective average and marginal corporate tax rates for several OECD countries, which were used by HM Treasury as part of the December 2003 Pre-Budget Report.

Researchers at the Centre have investigated tax reforms across OECD countries over the last 20 years and how these are related to tax competition. This work has produced several papers and has recently been presented at a high-level conference in Washington DC, organised by the American Enterprise Institute.

A major project co-funded by the Inland Revenue and the Hundred Group of FTSE 100 companies has studied the effects of recent changes to dividend taxation, focusing on the July

1997 abolition of refundable tax credits for UK pension funds. This work has been presented at seminars at the Inland Revenue, and at the ESRC Public Economics Working Group.

A theoretical analysis suggests that, as UK equities are held by both domestic and foreign institutional investors, and as foreign institutions control vastly more wealth in total than UK institutions, dividend tax changes that affect only UK institutions should not have a large effect on the value of UK companies. This is consistent with the observation that there was no sharp fall in the UK stock market around the time of the 1997 Budget, and is confirmed by a more detailed empirical analysis of share price responses to dividend payments, both before and after the tax reform. The theoretical analysis also predicts that UK pension funds should reduce the share of their wealth invested in UK equities following the abolition of refundable dividend tax credits. This prediction is consistent with changes in portfolio allocations of UK pension funds and with changes in the shares of UK equities owned by domestic pension funds and overseas investors.

We also find evidence that some UK companies have reduced their dividend payout ratios following this tax change. In particular, firms with profits earned outside the UK that paid dividends before July 1997 but chose not to pay them in the form of Foreign Income Dividends are found to have reduced their dividend payouts relative to all other firms. The choices made by these firms prior to July 1997 suggest that their dividend policies were influenced by the tax treatment of UK pension funds, even though we find no evidence that this benefited their share prices. We also find no evidence that this reduction in their dividend payout ratios was associated with any increase in their investment.

Other work on company taxation has looked at UK corporation tax revenues. One paper analyses the buoyancy of corporation tax receipts in the last two decades of the twentieth century, noting that there has been a sharp increase in the share of total corporation tax paid by firms in the financial sector. Other work looks at the sharp fall in corporation tax revenues in the last few years and analyses the forecast errors made by IFS, as part of a wider forecast comparison exercise supported by the Inland Revenue.

Griffith, R. and Klemm, A. (forthcoming), 'What has been the tax competition experience of the last 20 years?', *Tax Notes International*.

Devereux, M. P. and Klemm, A. (2003), 'Measuring taxes on income from capital: evidence from the UK', CESifo Working Paper 968 and IFS Working Paper 03/03.

Devereux, M. P., Griffith, R. and Klemm, A. (forthcoming), 'How has the UK corporation tax raised so much revenue?', IFS Working Paper.

Basu, S., Emmerson, C. and Frayne, C., 'An examination of the IFS corporation tax forecasting record', IFS Working Paper 03/21.

### *Investment and Finance*

A new project co-funded by the Bank of England has constructed measures of uncertainty for individual UK firms using data on analysts' forecasts of these firms' future profits. This extends previous work undertaken with Research Associate Jason Cummins (Federal Reserve Board), using data on US firms. A new finding is that the size of within-year revisions to the consensus earnings forecasts appears to provide a particularly informative measure of uncertainty and dominates earlier measures based on the dispersion in forecasts across individual analysts tracking the same firm. Both types of measure suggest that firms facing a higher level of uncertainty choose to use relatively less tangible capital and relatively more of other, more flexible, inputs.

Earlier papers on investment and uncertainty have been revised during the last year, and work has continued on the development and estimation of a fully parametric structural model that describes the response of investment to demand shocks for firms subject to partial

irreversibility. Other work on company investment has investigated the interpretation of coefficients on additional cash-flow terms, in investment–Tobin’s  $q$  models, as measures of the severity of financing constraints. This paper, which was presented at the 2003 NBER Summer Institute, provides conditions under which the coefficient on cash flow conditional on Tobin’s  $q$  increases monotonically with the cost premium for external finance.

A new project on the financial behaviour of innovative firms has started with Research Fellow Philippe Aghion (Harvard). An initial paper looks at differences in financing patterns between UK quoted companies with high, low and zero levels of R&D spending. Results indicate that R&D-intensive firms are more reliant on external sources of finance, and tend to switch from debt to new equity as R&D intensity increases. This work has been presented at the European Economic Association Congress, and will form the basis for an invited presentation at the Bundesbank’s annual conference in April 2004.

Bond, S. and Cummins, J. (2003), ‘Uncertainty and investment: an empirical investigation using data on analysts’ profits forecasts’, seminar, University College Dublin, 22 April 2003; Department of Economics Workshop, University of Oxford, 1 May 2003.

Bloom, N., Bond, S. and Van Reenen, J. (2003), ‘Uncertainty and company investment dynamics: empirical evidence for UK firms’, CEPR Discussion Paper 4025.

Bond, S. (2003), ‘Conditional investment–cash flow sensitivities and financing constraints’, NBER Summer Institute, 22 July 2003.

Aghion, P., Bond, S., Klemm, A. and Marinescu, I. (forthcoming), ‘Technology and financial structure: are innovative firms different?’, *Journal of the European Economic Association, Papers and Proceedings 2003*.

**Contacts: Steve Bond, Alexander Klemm**

## 7. Productivity and Innovation

### *Productivity*

The productivity gap between the UK and the USA has received much attention in recent Budgets. Our work has highlighted the importance of understanding the UK’s productivity gap at the sectoral level. The research finds that while the labour productivity gap between the UK and the USA narrowed during the 1990s in some sectors, it widened in others, such as ‘wholesale and retail’, ‘financial intermediation’ and ‘hotels and restaurants’.

Research has also combined theoretical insights with empirical evidence to look at how the threat of new entry affects innovation incentives and productivity growth among incumbent firms. The main implication of the theoretical model is that a higher entry threat should encourage innovation and productivity improvements in sectors that are currently close to the technological frontier, but discourage them in sectors that lag well behind the frontier. For the empirical work, measures of entry threat are constructed from UK policy reforms such as privatisations and from the introduction of the EU single market programme. The empirical findings support the theoretical predictions. The work has implications for policies that affect market entry, such as competition policy and regulation. The work was presented at an invited session of the European Economic Association Congress.

Research with international Research Fellows Daron Acemoglu (MIT), Philippe Aghion (Harvard) and Fabrizio Zilibotti (IIES, Stockholm) has investigated the determinants of vertical integration. This work confronts theoretical predictions on the internal organisation of the firm with data from the UK manufacturing sector. Consistent with the theory, it shows that an upstream and downstream activity pair is more likely to be vertically integrated when the downstream producer is more technology-intensive and the upstream supplier is less technology-intensive. Also consistent with the theory, the magnitude of both effects is

substantially amplified when the upstream inputs are an important fraction of the total costs of the downstream producer.

Value added per capita in EU countries has lagged behind that in the USA despite widespread reforms to product markets across EU countries aimed at increasing growth. Work at the Centre, co-funded by the European Union, has studied the macroeconomic impact of product market reforms undertaken in the EU over the 1980s and 1990s. Our results from looking at changes over time within countries suggest a non-linear relationship between the levels of economic rents and levels of R&D expenditure and growth rates of labour and total factor productivity (TFP). When we look at average differences across countries, we find that countries with lower average levels of rents are those that have higher productivity, TFP and R&D investment. Interpreting these results is, however, problematic, as we cannot separately identify the impact of the average level of rents across countries and the impact of other country characteristics that we do not observe.

Aghion, P., Blundell, R., Griffith, R., Howitt, P. and Prantl, S. (forthcoming), 'Entry and productivity growth: evidence from micro-level data', *Journal of the European Economic Association, Papers and Proceedings 2003*.

Griffith, R., Harrison, R., Haskel, J. and Sako, M. (2003), *The UK Productivity Gap and the Importance of the Service Sectors*, IFS Briefing Note 42 and AIM Briefing Note.

### *R&D and Technology Transfer*

Work has investigated the UK's poor R&D performance over the 1980s and 1990s relative to the USA and other G5 countries. We find that during the 1980s, reductions in government-funded R&D, such as defence spending, explained a significant proportion of the UK's poor performance relative to the USA. But during the 1990s, the gap can be attributed to the UK's weak growth in business expenditure on R&D.

Ongoing research has investigated technology sourcing by firms. The work, using data on UK firms' patenting activity in the USA, which include a firm-level measure of the location of innovative activity, suggests that technology sourcing is an important motivation for UK firms locating R&D activity in the USA. Specifically, UK firms that locate their R&D activity in the USA are more able to benefit from spillovers from US R&D. Work has also used linked establishment-level data on R&D and production activity to look at issues such as outsourcing of R&D activity and the extent to which firms co-locate production and R&D facilities.

Griffith, R. and Harrison, R. (2003), *Understanding the UK's Poor Technological Performance*, IFS Briefing Note 37.

Griffith, R., Harrison, R. and Hawkins, M. (2003), 'The organisation of R&D in the UK and its relationship to the manufacturing base', report to the Inland Revenue.

Griffith, R., Harrison, R. and Van Reenen, J. (2003), 'Technology sourcing: an empirical analysis using firm-level patent data', ZEW Workshop on Empirical Economics of Innovation and Patenting, Mannheim, 14–15 March.

### *Mapping the UK Production Sector*

Collaborative work with US researchers has investigated regional wage inequality in the UK. The research developed new empirical tests and found evidence of significant and persistent differences in the relative wages of skilled to unskilled workers – 'skill premia' – across UK regions. We found the skill premium in south-east England, where skilled workers are relatively more abundant, to be around one-third lower than in Wales or Scotland. The research examined the empirical implications of different explanations for regional variation in relative wages and found evidence consistent with standard trade theory – variation in relative wages is systematically related to industrial structure. A special session was organised at the Royal Economic Society Conference to disseminate the findings.

Ongoing research has looked at the effects of co-location externalities on the location of new plants in the UK. The work finds evidence that regional industrial structure affects the location of new entrants. Firms in more agglomerated industries locate new plants near to others in the same industry, and foreign multinationals locate new plants near to other foreign-owned plants in the same industry. Firms are also attracted to industrially diversified locations. The research also finds that Regional Selective Assistance grants, which are available in assisted areas of the UK, are effective in influencing where new plants are located.

Bernard, A. B., Redding, S., Schott, P. K. and Simpson, H. (2003), 'Relative wage variation and industry location', NBER Working Paper 9998 and IFS Working Paper 03/17.

Bernard, A. B., Redding, S., Schott, P. K. and Simpson, H. (2003), 'All is not equal', *Centrepiece*, vol. 8, no. 2, pp. 2-7.

Devereux, M. P., Griffith, R. and Simpson, H. (forthcoming), 'The geographic distribution of production activity in the UK', *Regional Science and Urban Economics*, in press.

Devereux, M. P., Griffith, R. and Simpson, H. (2003), 'Agglomeration, regional grants and firm location', IFS mimeo.

**Contacts: Rachel Griffith, Rupert Harrison, Helen Simpson**

## **8. Training, Education, Human Capital and Wages**

### *Higher Education Reforms*

With the funding of higher education (HE) a key focus of policy-makers in 2003, we undertook a detailed assessment of the issues underlying government intervention in HE funding and of the various options facing policy-makers. Our work provided an analysis of the government's higher education White Paper, published in January 2003 – in which proposals to introduce variable top-up fees for university students were first set out – and the Conservative proposals for HE finance at the time, in which it was proposed that all tuition fees would be scrapped.

Our work pointed out that the economic principles underlying government intervention in HE have at their core the notion that when young people are making HE investment choices, they face a trade-off between short-run costs (tuition fees and living expenses at university, and forgone earnings) and long-run private and external benefits (higher earnings after graduation and spillover benefits to society at large). Government intervention may be desirable for a number of reasons relating to imperfections in capital markets, missing information and positive spillovers from HE participation; alternatively, such intervention may be related to underlying redistributive goals. In any case, such intervention can take a number of forms, including loan provision or subsidy in a private market for HE, or complete funding from general taxation.

Our research indicated a number of key differences between the different approaches set out by the two main political parties. First, we pointed out that increasing HE funding per head through tax funding alone (as the Conservatives at that time were proposing) would be both costly (in public spending terms) and regressive since the main beneficiaries would be graduates, who are predominantly at the top of the income distribution. The White Paper proposals, in which tax funding would be combined with a system of deferred charges, would also entail considerable extra public spending costs, particularly if the number of HE students were expanded in line with government targets. However, these costs would be borne somewhat more heavily by those who stood to gain the most from the reforms.

Our analysis also showed how the proposed reforms would affect the financial position of university students, as well as providing a discussion of how the reformed loan system would affect the marginal and average tax schedules faced by graduates.

Goodman, A. and Kaplan, G. (2003), 'Study Now, Pay Later' or 'HE for Free'? An Assessment of Alternative Proposals for Higher Education Finance, IFS Commentary 94.

**Contacts: Lorraine Dearden, Emla Fitzsimons, Alissa Goodman**

### **Schooling Attainment, Financial Incentives and Parental Background**

In work carried out in conjunction with the Centre for the Economics of Education (CEE), we have first considered the extent to which individuals' educational choices are restricted by *credit constraints*, and then estimated the individual wage returns from these educational investments that accrue – or would have accrued – to variously defined *marginal learners*. The two key educational choices we have considered are staying on in full-time education past the age of 16 and completing any type of higher education.

In our credit constraint analysis, we have shed light on the extent to which credit constraints are affecting individuals' choices to stay in full-time education past the age of 16 and to complete HE qualifications in the UK, and on how this has varied over time, in particular for the 1970 birth cohort (BCS70) compared with the 1958 one (NCDS). The problem in identifying the pure effect of short-term credit constraints from the raw correlations observed between family income and schooling outcomes is that parental income also reflects long-run, not just short-run, influences on schooling attainment. The aim of the analysis is to separate out the effects on schooling of short-term income constraints from longer-term family income and background influences.

We found some evidence that decisions to stay in full-time education past the age of 16 are affected by short-term credit constraints, after controlling for ability, family background and region, particularly for the more recent 1970 cohort. In contrast, we found much less evidence of short-term credit constraints impacting on the HE decisions of individuals in either cohort, with the possible exception of women in the earlier cohort. This finding suggests that policies aimed at reducing the possible impact of short-run credit constraints on education decisions should target individuals at the age of 16 (or possibly earlier) when they are making decisions about whether or not to continue in full-time education past the age of 16, rather than at 18 when individuals are making HE decisions.

Our second, related, analysis estimates the average return to the same two broad educational investments for individuals at the margin in the educational decision, where the 'margin' is defined in various alternative ways. The rationale for this exercise is that to help guide and direct policy, it is marginal rather than average returns to education that matter most. Our general finding is that there are substantial returns to staying on beyond 16 and to going on to higher education for all subgroups of the population, though we have uncovered some significant variation in returns, especially for men.

Following the successful evaluation of the Education Maintenance Allowance (EMA) funded by the DfES, Centre funding has allowed further analysis of the transitions from compulsory schooling to work or to further education. The dynamic model developed describes all of the possible paths that an individual can take and has been used to assess the importance of family background as well as financial incentives for educational attainment. The model exploits the rich data-set that we have collected (together with our EMA partners) and uses the fact that individuals are observed from the first moment they have a choice between work and

education. It also takes explicit account of attrition. From a policy perspective, the model allows the analysis of financial incentives and the impact of long-term financial factors on educational choice.

The main findings of the work show that overall participation in post-compulsory education, without a job, has increased in response to the subsidy. Simulations from the model show that the magnitude of the increase in participation is increasing in the generosity of the subsidy, in the sense that if the subsidy were to be further increased, we would expect participation to increase by even more. However, after its withdrawal at the end of post-compulsory schooling, the EMA does not appear to have any subsequent impact on participation in higher education.

Sianesi, B. (2003), 'Credit constraints and returns to the marginal learner', draft report to the DfES.

**Contacts: Lorraine Dearden, Emla Fitzsimons, Barbara Sianesi**

### **Returns to Education**

Centre researchers have contributed two refereed chapters to *The Economics of Education in the United Kingdom*, a high-profile book soon to be published by Princeton University Press. The book is intended to provide clear and authoritative evidence on the economic implications of education and reasons why individuals choose to invest more in education, as well as to draw together this large body of work to inform policy discussion on a wide range of topics in the UK. Each chapter was presented and commented on by a discussant at a conference in July 2003, with final comments by Professor Alan Krueger.

The chapter on 'Measuring the returns to education' explores the question of how the quantification of the individual wage gain from education does – or could – feed into policy, and in particular the contribution it can give to the issue of under-investment in education. Issues that are more methodological in nature are then highlighted to give the non-technical reader an intuition and flavour of the various methods used in recent specialist research. The various methods are in turn applied to a common and very rich data-set (the NCDS cohort) to obtain the latest estimates of the returns to different educational qualifications in the UK. After interpreting and discussing the results, the chapter concludes by pointing out the limitations the policy-maker should be aware of when trying to use the estimates for policy purposes.

Co-funded by the Centre for the Economics of Education, we have compiled *Returns to education: A non-technical summary of CEE work and policy discussion*, a non-technical and relatively brief policy summary of an extensive CEE research programme which has focused on the relative value of different academic and vocational qualifications in the British labour market, how this value differs for different subgroups of the population and how it has changed over time. The potential policy implications of unexpectedly low returns and of wide differentials in the returns to different types of qualifications are then carefully discussed.

The most robust findings to date are that, overall, returns to educational qualifications in terms of individual wages are sizeable and significant. Considerable variation was, however, uncovered in the wage returns to different types of qualification, with academic qualifications generally earning higher rewards. Furthermore, the returns to all qualifications have been found to have remained stable throughout the last decade for both men and women, the only exception being the disappearance of returns from very low-grade GCSEs.

Also in conjunction with the Centre for the Economics of Education, we have investigated the returns to specific vocational qualifications. The primary focus of our work has been the National Vocational Qualification (NVQ) at level 2. NVQs are relatively new, widely held, employer-based vocational qualifications, which are also the focus of policy. For instance, the goal of the Employer Training Pilots programme is to train individuals up to level 2. The aim of our research was to investigate further the finding in previous research on vocational qualifications of large negative returns to NVQs at level 2 for both men and women.

Using the 1970 British Cohort Study (BCS70) and the Labour Force Survey (LFS), we continued to find low or negative returns to NVQs for most subgroups of the working population. Returns were low even when we controlled for individual ability and when we compared individuals with NVQs at level 2 and individuals who only held lower-level qualifications. We found that individuals with the lowest returns were those who had obtained their NVQ at level 2 through government training. This is consistent with a body of work that finds poor returns to government trainees. NVQs are more likely to be received through government training than other vocational qualifications. This can partly explain the poor returns to NVQs at level 2.

We were asked by the Directorate General for Employment and Social Affairs of the European Commission to assess a report commissioned by them with the aim of promoting discussion on the economics of human capital, clarifying certain aspects and diffusing this debate among public authorities responsible for employment and regional development. All the contributions were discussed at a technical seminar in Brussels and, suitably revised, were published as an annex in the Report.

Blundell, R., Dearden, L. and Sianesi, B. (forthcoming), 'Measuring the returns to education', in S. Machin and A. Vignoles (eds), *The Economics of Education in the UK*, Princeton University Press.  
Sianesi, B. (2003), 'Comments on "Human capital in a global and knowledge-based economy, part II: assessment at the EU country level" by Angel de la Fuente', report for the European Commission, Employment and Social Affairs DG.

**Contacts: Lorraine Dearden, Barbara Sianesi**

### *Assessing the Impact of Policy Interventions in Education*

Our second chapter in the book *The Economics of Education in the United Kingdom* discussed the evaluation methods used to assess the impact of policy interventions in education. Accurate assessment of the benefits and costs of potential interventions is crucial to policy-makers. Our work highlighted the importance of clarity over what impact is actually being identified and described several potential methods for carrying out such evaluations, alongside the various assumptions made. In practice, such techniques cannot be simply lifted off the shelf, but instead need to be carefully designed with respect to the specific problems that arise with a particular programme evaluation. Hence our work also described and presented some findings from two specific evaluations of education initiatives that have been conducted in the UK – the Excellence in Cities programme and the Education Maintenance Allowance.

Emmerson, C., McNally, S. and Meghir, C. (forthcoming), 'Economic evaluation of education initiatives', in S. Machin and A. Vignoles (eds), *The Economics of Education in the UK*, Princeton University Press.

**Contacts: Lorraine Dearden, Barbara Sianesi**

### **General Equilibrium and Human Capital Policy**

In this research we develop an overlapping generations general equilibrium (GE) model of savings, skills and human capital and labour supply. Idiosyncratic uncertainty under risk aversion is considered, along with fixed costs of working and discrete working and studying choices. The model parameters are identifiable with currently available data.

Several aspects of labour market and human capital policies can be simulated within the model and evaluations of the overall effects of interventions can be performed. We have solved the model for the steady state and simulated the introduction of stylised wage and tuition subsidies. Based on the rich simulated data, we assessed the long-run effects of these policies and detailed their economic origins by decomposing the overall effect. GE effects were found to be as important as the commonly computed partial equilibrium (PE) effects, potentially altering the conclusions obtained under PE. Given the market failures being considered, both policies are potentially efficient. However, they have opposite distributional implications: the wage subsidy is more effectively targeted at the least able and skilled agents. Finally, risk has been established as the main driving force behind individual labour market decisions and economic responses to wage and tuition subsidies.

Blundell, R., Costa Dias, M. and Meghir, C. (2003), 'The impact of human capital policies: a general equilibrium approach', presented at the Summer Meetings of the Econometric Society, Northwestern University, June 2003.

**Contacts: Monica Costa Dias, Costas Meghir**

## **Theme D. WELFARE: ITS SOURCES, LEVEL AND DISTRIBUTION**

### **9. Inequality and Social Welfare**

#### **Monitoring Trends in Income Inequality and Poverty**

Centre funding has again enabled us to provide timely assessment of the trends in income inequality and poverty in Great Britain. This year, we provided a detailed assessment of government progress in reducing pensioner poverty, described by government ministers as one of their 'first priorities' on entering government. Our research showed that large increases in means-tested benefits paid to pensioners, combined with growing prosperity amongst newly retiring cohorts of pensioners, meant that pensioner poverty (measured relative to non-pensioners) did not rise in the late 1990s, whereas at similar points in previous economic cycles relative pensioner poverty has risen sharply. Contrary to common perception, the rate of pensioner poverty in Britain is now no higher than the non-pensioner poverty rate, although some groups of pensioners, particularly older, single pensioners, remain disproportionately poor. In addition, we showed that income inequality amongst pensioners has not increased over the 1990s. This is despite the fact that the very large increases in wage and income inequality occurring over the 1980s would be expected to have fed through into the incomes of the newly retired by this time. This provides us with a puzzle that future research will address.

We have also continued our work assessing the government's child poverty targets. The initial work was an important contribution to the discussion of the government's options in advance of the 2003 Budget. The updated analysis was published shortly before the 2003 Pre-Budget Report, which was the last opportunity for the government to announce the child tax credit

rates in force in 2004/05. We expect this work to continue in early 2004, when we plan to evaluate the impact on child poverty of the changes announced in the 2003 Pre-Budget Report. Centre researchers have also assisted the Work and Pensions Select Committee in its investigation into child poverty in the UK. In addition, Centre researchers were invited to join the DWP technical experts group, which provided advice to government on the design of its new child poverty measure.

We have also continued to make our work on income inequality accessible to a wide audience. Two complementary pieces of work stand out here. First, a note was written to give a clear presentation of the level of income that is received by people at the middle of the income distribution in Britain, and to show where the people often referred to as 'middle Britain' are in that distribution. Whilst there are important policy debates concerning higher-rate taxpayers, it must be recognised that such people are not representative of the middle of the income distribution: higher-rate taxpayers are drawn almost exclusively from the top third and mainly from the richest tenth of the income distribution.

Secondly, we continue to expand the resources available on our website. As well as maintaining an up-to-date range of information about the distribution of income in Great Britain from 1961 to 2001–02 (including a spreadsheet showing different income points and measures of income inequality over time), we have now developed an income distribution model that allows individuals to place themselves in the income distribution on the basis of their household income after adjusting for their household size and composition. Our 'Where Do You Fit In?' model is now available online at <http://www.ifs.org.uk/wheredoyoufitin>.

Our work understanding the intergenerational transmission of incomes has continued with a new programme of research funded by the Treasury's Evidence Based Policy Fund. Our first piece of analysis has examined the impact of teenage pregnancy on later life outcomes, using the British Cohort Study (BCS). The work has drawn on many years of Centre-financed data development and analysis of this data-set. Previous UK-based studies have tended to find that teenage motherhood leads to very negative outcomes for mothers and children later in life. However, many of these studies have not been able to control for all factors – observable or unobservable – that determine selection into teenage motherhood. Our study uses a particularly innovative idea developed in the USA, which exploits the random nature of naturally-occurring miscarriages, to uncover the 'true' causal impact of teenage motherhood on later life outcomes. Our findings confirm that the negative associations between teenage motherhood and mothers' later socio-economic outcomes could be due to unobserved characteristics of the mother, rather than a negative impact of teenage motherhood per se. If this is the case, teenage motherhood should be read as a symptom of prior disadvantage, rather than as a direct cause of future disadvantage. Such findings suggest that policy interventions that aim simply to prevent teenage conceptions or births will not be as effective as interventions aimed earlier in these young people's lives. Our results echo findings from much of the US literature on this subject.

Our work has also studied the impact of transfer programmes in other developed and developing countries. For example, we have analysed the impact of food assistance programmes (food stamps) in the USA during the period of rising income inequality 1978–92, using the Panel Study of Income Dynamics data. In that work, we asked, in a period of rising income volatility, to what extent food assistance can be viewed as an effective insurance to income shocks. We find that the programme has a substantial consumption-smoothing effect in the low-income population: the response of food consumption to an income shock is a third lower after accounting for the monetary value of food stamps.

Blundell, R. and Pistaferri, L. (2003), 'Income volatility and household consumption: the impact of food assistance programs', *Supplement to Journal of Human Resources*, vol. 38, pp. 1032–1050.

- Brewer, M. and Goodman, A. (2003), Submission to DWP Select Committee on Child Poverty.
- Brewer, M. (2003), *What Do the Child Poverty Targets Mean for the Child Tax Credit? An Update*, IFS Briefing Note 41.
- Brewer, M. and Kaplan, G. (2003), 'What do the child poverty targets mean for the child tax credit?', in R. Chote, C. Emmerson and H. Simpson (eds), *The IFS Green Budget: January 2003*, IFS Commentary 92
- Brewer, M., Goodman, A. and Shephard, A. (2003), *How Has Child Poverty Changed under the Labour Government? An Update*, IFS Briefing Note 32.
- Goodman, A., Myck, M. and Shephard, A. (2003), *Sharing in the Nation's Prosperity? Pensioner Poverty in Britain*, IFS Commentary 93.
- Goodman, A., Kaplan, G. and Walker, I. (2003), 'Understanding the effects of early motherhood in Britain', draft report for the Treasury's Evidence Based Policy Fund.
- Wakefield, M. (2003), *Is Middle Britain Middle-Income Britain?*, IFS Briefing Note 38.

### *Consumption Inequality and Income Uncertainty*

Our understanding of measurement issues in consumption surveys has made important progress in the last year. Research in this regard has concentrated mainly on the US Consumer Expenditure Survey (CEX). Previous work had focused almost exclusively on consumption data from one element of this survey, the quarterly interview survey. We undertook detailed work comparing consumption data from the interview survey with weekly diary data from another survey element of the CEX. This enabled us to understand the importance of measurement error in individual categories of spending (food, clothing, etc.) and, in particular, to focus on the implications for the study of consumption inequality. By exploiting the most reliable information from the interview and the diary surveys, we found a pattern of inequality over time that is consistent with the permanent income hypothesis and very different from the one we would get considering interview data only. We also completed previous work aimed at checking whether expenditure information from the two CEX components is consistent over time when compared with aggregate information from National Accounts. In line with what has already been reported by other researchers, and in sharp contrast with similar comparisons for the UK, we found that CEX figures massively understate those obtained by looking at National Accounts.

Understanding the joint evolution of consumption and income inequality within the context of models of consumer saving behaviour requires an understanding of the way that different shocks to incomes pass through into the two distributions. We have used simulations to explore the success of approximations that allow changes in the variance of permanent and transitory shocks to be related to changes in the variances and covariances of income and consumption in particularly simple ways, establishing precisely the information needed to be used in such methods for them to work well.

Finally, we have used panel data on household consumption and income to evaluate the degree of insurance to income shocks. The aim is to describe the transmission of income inequality into consumption inequality by contrasting shifts in the cross-sectional distribution of income growth with shifts in the cross-sectional distribution of consumption growth. In this work, we combine panel data on income from the PSID with consumption data from repeated CEX cross-sections. The results point to some partial insurance but reject the complete market restrictions. We find a greater degree of insurance for transitory shocks and differences in the degree of insurance over time and across demographic groups. We also document the importance of durables and of taxes and transfers as a means of insurance.

- Battistin, E. (2003), 'Errors in survey reports of consumption expenditures', IFS Working Paper 03/07.
- Attanasio, O., Battistin, E. and Ichimura, H. (forthcoming), 'What really happened to consumption inequality in the US?', NBER Working Paper.
- Blundell, R., Pistaferri, L. and Preston, I. (2003), 'Consumption inequality and partial insurance', UCL Working Paper 03/06.

*Contacts: Alissa Goodman, Erich Battistin, Mike Brewer, Ian Preston, Andrew Shephard, Matt Wakefield*

## **10. Welfare Measurement and Cost of Living**

### *Demographics in Demand Systems*

Household composition can be expected to affect the allocation of household expenditure among goods, at the very least because of economies of scale as household size increases and because different people have different needs (adults versus children, for example). Specifying demographic effects correctly in demand analysis is important both in order to estimate correct price and expenditure elasticities and for the purpose of making household welfare comparisons. A common way of including demographics is as a function that scales total expenditure, and to make this scaling function independent of the level of total expenditure. A popular method in the parametric estimation of demand systems is to estimate share equations that are quadratic in the logarithm of total expenditure, but there is also a substantial literature on the semi-parametric estimation of Engel curves. In this research (which was co-funded by the Leverhulme Trust under the research programme on ‘The Changing Distribution of Consumption, Economic Resources and the Well-Being of Households’), we employed some of these semi-parametric techniques to show that, for some goods, further terms are likely to be required in the Engel curve in addition to quadratic terms. We used this result to identify the parameters of a scaling function that varies with total expenditure, for couples with one child compared with childless couples. Although the intercept of this scale was not very precisely determined, the term that showed how the scale varies with total expenditure was well determined and was less than one, which means the scale decreases as total expenditure increases. The scale we obtained at the minimum expenditure level was quite close to 1.3, which is almost exactly the value of the OECD scale comparing a couple with one child and a childless couple. The base-independent scale estimated on the same data was generally hard to identify precisely and the point estimate was often implausibly low.

Blow, L. (2003), ‘Demographics in demand systems’, IFS Working Paper 03/18.

### *A Tax on Fatty Foods*

Government policy is clearly a factor that can affect household welfare. Governments are often keen to influence household behaviour through relative prices by imposing taxes on items such as cigarettes and alcohol. Part of our research has looked at the possibility of introducing similar taxes on fatty foods in order to stem the rise in obesity rates in the UK – a ‘fat tax’. Such a policy measure has received increasing media coverage over the past year, although the government itself has tabled no firm proposals. The research discusses ways in which a fat tax could be introduced, either on fat content directly or perhaps on certain types of foods such as snacks and soft drinks. We also use data from the National Food Survey to simulate a hypothetical tax in order to assess the distributional impact of such a measure. We find that the amounts of fat and other ‘bad’ nutrients consumed by rich and poor are actually very similar. This means that any ‘fat tax’ is likely to be regressive, costing relatively more for the poor than for the rich.

Crawford, I., Leicester, A. and Windmeijer, F. (forthcoming), *The ‘Fat Tax’: Economic Incentives to Reduce Obesity*, IFS Briefing Note.

### *Welfare Rankings from Multivariate Data: A Non-Parametric Approach*

Economic and social welfare is inherently multidimensional. However, choosing a measure that combines several indicators is difficult and may have unintended and undesirable effects

on the incentives of policy-makers. We have developed a non-parametric empirical method for deriving welfare rankings based on data envelopment, which avoids the need to specify a weighting scheme. The results are valid for all possible social welfare functions that share certain canonical properties. We have successfully applied to the ESRC for further funding to develop the idea and also to investigate the effects of sampling variation on the results. This work is joint with Gordon Anderson (Toronto).

### *Valuing Product Market Innovations*

Current methods for valuing the increase in consumers' welfare that results from the launch of a new product rely on recovering its reservation price by extrapolating estimated demand curves. The results are reliant on choice regarding functional form, and usually out-of-sample prediction of the demand curve. We have developed a method that non-parametrically bounds the entire set of reservation prices consistent with both the data and the hypothesis of utility maximisation. This removes both functional form assumptions and the need to extrapolate outside the range of observed price variation. It can also make use of very small numbers of observations. This year, we further developed the work and found methods that would identify the tightest possible bounds on the reservation prices. We also applied this approach to consumer panel data for the first time.

Blow, L. and Crawford, I. (forthcoming), 'Valuing a new good', IFS Working Paper.

### *An Axiomatic Approach to the Measurement of Productivity*

This work shows how information can be recovered on productivity changes in organisations with multiple inputs and multiple outputs without specifying the functional form of the production or cost functions. The identifying assumptions are that the organisation is cost-minimising and that the direction of technical change (i.e. up or down) over time is known. For private firms (i.e. organisations where the prices of market goods are observed), we develop analogous results based on a profit-maximisation assumption. The weak axioms of cost minimisation and profit maximisation respectively provide both inequality restrictions on the data-consistent rate of technical change and a way of non-parametrically testing our identifying assumptions. This work is joint with Søren Arnberg from AKF Copenhagen.

### *Bounding the Demand Responses to Price Changes*

This research is joint with International Research Fellow Martin Browning (Copenhagen). We have applied non-parametric economic restrictions (Afriat inequalities) and non-parametric statistical methods to the problem of recovering Marshallian demand curves. This allows positive predictions to be made whilst ensuring theoretically consistent, but otherwise unrestricted, commodity substitution patterns. We show that these methods always improve the bounds recovered by previous authors and show how additional (testable) restrictions on functional structure can further tighten the bounds we recover. We have applied these ideas to UK consumption data.

Blundell, R., Browning, M. and Crawford, I. (2003), 'Nonparametric Engel curves and revealed preference', *Econometrica*, vol. 71, pp. 205–240.

### *Non-Parametric Methods for the Consumer Characteristics Model*

This work is also joint with International Research Fellow Martin Browning (Copenhagen). We have extended the literature on non-parametric/axiomatic approaches to demand analysis to consumer characteristics models. These models suppose that consumers' preferences are defined over the attributes of market goods rather than the goods themselves. We have derived

the minimal necessary and sufficient empirical conditions under which data on the market behaviour of heterogeneous, price-taking, individual consumers are non-parametrically consistent with the consumer characteristics model. Where these conditions hold, we show how information may be recovered on individual consumers' marginal valuations of product attributes. Where the conditions fail, we highlight the role that the introduction of unobserved product attributes can play in rationalising the data. We have applied these ideas to consumer panel data on differentiated products.

Blow, L., Browning, M. and Crawford, I. (2003), 'Nonparametric methods for the consumer characteristics model', mimeo, November 2003.

Crawford, I. (forthcoming), 'Necessary and sufficient conditions for latent separability', Cemmap Working Paper.

***Contacts: Laura Blow, Ian Crawford***

## 8. FINANCIAL STATEMENT

The table below summarises how the ESRC's financial contribution to the Centre was spent. The ESRC Centre contributes around 30% 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 Nuffield Foundation, the Leverhulme Trust, the Gatsby Foundation and the Joseph Rowntree Foundation), government departments (such as the Department for Work and Pensions, HM Treasury, the Department for Education and Skills, the Department for Trade and Industry, the Legal Services Commission and the Inland Revenue), the European Union, the World Bank and other bodies, including the Bank of England and BBC TV. In addition, the IFS Large Business Tax Programme was supported by a consortium of private sector firms.

Salary costs make up the bulk of expenditure within the Centre. IFS determines its own salary structure through internal discussion with staff under delegated authority from its Trustees, with negotiations taking into account prevailing levels of remuneration in both the Civil Service (primarily the Government Economic Service) and universities. IFS operates a personal pension scheme under which it makes a contribution of up to the maximum allowed under Inland Revenue rules.

Other expenditure covers payments to Research Fellows and Associates (10 are financed, at least in part, by the Centre), the cost of the Research Scholars (including their fees paid to University College London), secretarial costs, overheads (at an average of some 50% of direct salaries), computing, travel and miscellaneous costs.

### **RESEARCH CENTRE BREAKDOWN OF COSTS, 2003 (January to December 2003)**

Research Staff	503,224
Research Fellows and Associates	23,600
Research Scholars	32,925
<b>Total research staff</b>	<b>559,749</b>
Secretarial support	23,588
Computing costs	25,251
UK travel	3,649
Overseas travel	10,725
Overheads	297,502
<b>Total costs</b>	<b>920,464</b>
IFS contribution to cover accommodation, library, insurance and professional fees	131,949

## 9. PERFORMANCE INDICATORS

### A. Publications

Published outputs from the Centre for the period covered by this report reflect our objectives of providing high-quality microeconomic research on issues related to public policy and of using the findings from this research to inform and engage in public policy debates.

Centre researchers have published about 40 articles in refereed academic journals and around 30 chapters in edited books. These publications cover the full range of our research programme, including, for example, papers on:

- savings (e.g. O. Attanasio and S. Rohwedder, 'Pension wealth and household saving: evidence from pension reforms in the United Kingdom', *American Economic Review*, 2003, vol. 93, pp. 1499–1521);
- household wealth (e.g. J. Banks, R. Blundell and J. P. Smith, 'Understanding differences in household financial wealth between the United States and Great Britain', *Journal of Human Resources*, 2003, vol. 38, pp. 241–279);
- pensions and retirement (e.g. R. Blundell, C. Meghir and S. Smith, 'Pension incentives and the pattern of retirement in the United Kingdom', in J. Gruber and D. A. Wise (eds), *Social Security Programs and Retirement around the World: Micro-Estimation*, University of Chicago Press.);
- corporate taxes (e.g. M. Devereux and R. Griffith, 'Evaluating tax policy for location decisions', *International Tax and Public Finance*, 2003, vol. 10, pp. 107–126);
- labour market interventions (e.g. R. Blundell, H. Reed, A. Shephard and J. Van Reenen, 'The impact of the New Deal on the labour market: a four year assessment', in P. Gregg and J. Wadsworth (eds), *The State of Working Britain*, 2<sup>nd</sup> edition, Palgrave Macmillan, Basingstoke, 2003);
- research and development (e.g. R. Griffith, S. Redding and J. Van Reenen, 'R&D and absorptive capacity: theory and empirical evidence', *Scandinavian Journal of Economics*, 2003, vol. 105, pp. 99–118);
- education (e.g. A. Goodman and G. Kaplan, 'Study Now, Pay Later' or 'HE for Free'? An Assessment of Alternative Proposals for Higher Education Finance, Commentary 94, IFS, London, 2003);
- poverty (e.g. M. Brewer, T. Clark and A. Goodman, 'What really happened to child poverty in the UK under Labour's first term?', *Economic Journal*, 2003, vol. 113, pp. F240–F257);
- consumer demand (e.g. R. Blundell, M. Browning and I. Crawford, 'Nonparametric Engel curves and revealed preference', *Econometrica*, 2003, vol. 71, pp. 205–240).

As this brief selection indicates, Centre publications range from scientific papers in leading general journals such as *American Economic Review*, *Econometrica*, *Economic Journal* and *Quarterly Journal of Economics*, through papers in leading field journals such as *Journal of Econometrics*, *Journal of Human Resources* and *Journal of Public Economics*, and less technical papers in journals such as *National Tax Journal*, *Fiscal Studies* and *World Economy* that disseminate findings to a wider range of users. Centre researchers have contributed three chapters to an important book on *The Labour Market under New Labour*, edited by Dickens, Gregg and Wadsworth; two chapters to a forthcoming book on *The Economics of Education in the UK*, edited by Machin and Vignoles; and contributed two chapters and helped to edit *Health, Wealth and Lifestyles of the Older Population in England: The 2002 English Longitudinal Study of Ageing*.

Centre researchers have also sought to inform public policy debates. Commentaries have been produced on proposals for reforming the funding of higher education and on trends in the incidence of poverty among pensioners. Online Briefing Notes have been written on child poverty; support for childcare; the new child tax credit and working tax credit; the pension credit; proposals for pension reform; trends in inequality and income distribution; London's congestion charge; public spending; UK productivity and technology performance; and corporation tax reform. Centre researchers and resources have again made an important contribution to the Green Budget analysis published by the Institute for Fiscal Studies.

In the next section we describe our initiatives to communicate and publicise both our research findings and policy analyses to a wide range of interested parties.

## **B. External Relations**

The research and support of the ESRC Centre for Public Policy play a pivotal role in IFS's contribution to public policy debate and to its participation in cutting-edge academic discourse. In 2003, IFS employed a dedicated Conference Organiser, much of whose work is taken up with events organised to disseminate Centre research.

On the policy side, the Green Budget 2003, supported by the ESRC, was a highlight, bringing together work on the public finances, public services, personal tax reforms and company taxation. The main findings were presented to an audience of civil servants, journalists, academics and interested parties from the professions and commerce. As usual, we held briefings for journalists after the Budget and the Pre-Budget Report.

A week is a long time in the policy world, and Centre funding has given us the crucial resources we need to examine issues thoughtfully as they arise and respond quickly to current debates. During 2003, these included London's congestion charge, the new tax credits for families and for pensioners, the government's proposed pension reforms and its consultation document on corporation tax. At the appropriate times, Briefing Notes were published on the IFS website about each of these subjects (see [www.ifs.org.uk/publications/briefnotes.shtml](http://www.ifs.org.uk/publications/briefnotes.shtml) for a full list of Briefing Notes). As part of the ESRC's Social Science Week, a report about the government's higher education funding proposals was published.

To ensure that Centre research is influential at the highest level, members of staff meet regularly with civil servants and MPs to discuss current policy questions. Over the period covered by this report, a number of staff have given evidence to Select Committees – about childcare provision, child poverty and the public finances – and one, Carl Emmerson, has been acting as a special adviser to the Work and Pensions Committee and another, Alissa Goodman, as a technical adviser on child poverty to the Department for Work and Pensions.

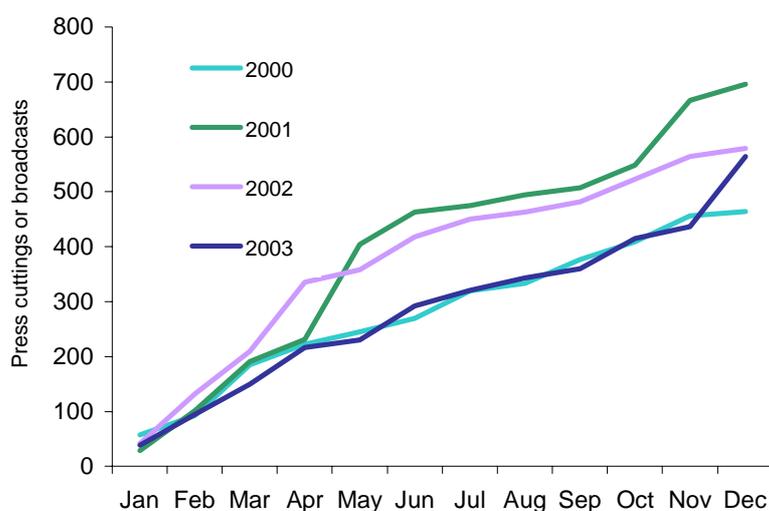
In the academic arena, Centre researchers attended a variety of conferences in the UK and abroad, presenting papers and networking with academics from a range of countries and disciplines. Key conferences hosted at IFS included the third workshop of the RTN project on the economics of ageing and the launch of the English Longitudinal Study of Ageing. The first of these was part of an EU-funded series of workshops aimed particularly at fostering research and presentation skills among young researchers. Papers about pensions policy, retirement and saving were presented from the UK, Cyprus, France, Germany, Italy, the Netherlands and the USA.

Centre researchers presented academic papers and gave lectures at a wide variety of conferences and seminars in the UK, throughout Europe and further afield. Our network of International Research Associates provides the basis for international collaboration across a

range of subjects. These and other overseas academics made a series of visits to IFS over the year, and a number of Centre researchers made reciprocal visits, working together with overseas colleagues both informally and formally through funded projects.

Many IFS and Centre staff are also involved in editing journals, submitting and refereeing articles, both for *Fiscal Studies* and outside journals, and in serving on committees for UK and international conferences. In 2005, the World Congress of the Econometric Society will be held at University College London, and Centre Researchers Orazio Attanasio, James Banks, Richard Blundell, Rachel Griffith and Costas Meghir, as well as other Centre staff, are taking leading roles in the organising committee. We plan to organise an ESRC Centre policy session at this conference.

### Cumulative press coverage by month, 2000 – 2003

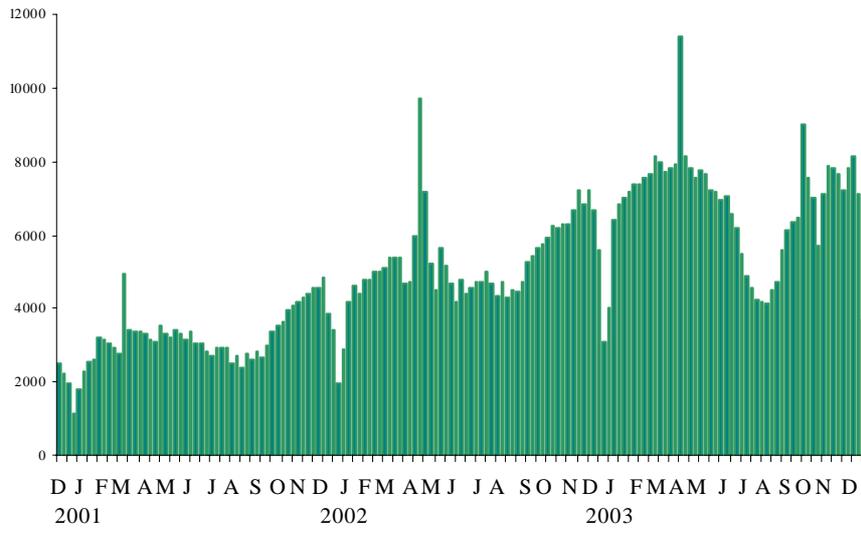


Much of the Institute's external relations programme is conducted through the print and broadcast media. All Centre work is publicised through Press Releases, which are now distributed mainly electronically, and we maintain close links with journalists working in the public policy field through frequent press briefings and informal contact. Since October 2002, we have released monthly Public Finance Bulletins to analyse the government's figures soon after they are released. Press coverage has peaked around key political events such as the Budget and Pre-Budget Report, as well as at the time of the Green Budget and, to a lesser extent, around the release of other IFS work.

Centre funding allows staff to spend time talking to journalists and taking part in broadcast interviews. In the run-up to a general election, when the demand for staff to comment will be higher than usual, we are planning extensive media training for new and experienced researchers over the coming year.

The IFS website is constantly expanding, and the annual number of visitors continues to increase and currently stands at about 30,000 per month. IFS Briefing Notes, Press Releases, Working Papers and most Commentaries are now made available free of charge online. Funding from the ESRC for communications activities is going towards a new web-server and work on a database-driven site, which is almost complete. The redesign that will accompany this technological overhaul is underway and is taking into account the comments received from the ESRC's consultants, Bunnyfoot.

**Weekly unique visitors to the IFS website, 2001 – 2003**



## 10. A LOOK FORWARD

### Labour Market Responses to Tax and Benefit Policy

We are planning a multifaceted evaluation of the impact of the new child tax credit (CTC) and working tax credit (WTC) using structural labour supply models. One of the issues that we hope to focus on is how the rules on which partner in a couple receives these credits affect decisions on labour supply and the allocation of resources within the household. In doing this work, we will build on our earlier work on 'collective' labour supply models.

Empirical work on estimating the employment impact of tax and benefit reforms such as the new tax credits has so far tended to divide into two main categories: 'ex-ante' simulations based on estimates of structural models using data collected before the reform takes place, and 'ex-post' evaluations using data from before and after the reform, often using 'difference-in-differences' methods. So far, there has been little systematic comparison of how ex-post and ex-ante methods compare with each other in their accuracy and efficiency. We plan to undertake a full study of this using data from the Family Resources Survey covering periods before and after the introduction of the working families' tax credit (WFTC) and the new tax credits. This should help us to derive a set of recommendations for the methodological approach to be used in future evaluation work using individual and household data.

### Microsimulation of Labour Market Reforms

Over the next 12 months, we will complete our implementation of the IFS tax and benefit model, TAXBEN, on British Household Panel Survey data (a beta version of the model is already up and running). We will also extend our integration of TAXBEN with our structural labour supply modelling programs. In particular, we are interested in combining the simulated labour supply responses from our structural models with poverty and income distribution analysis to look at how tax and benefit reforms might affect the trade-off between equity and efficiency.

We are also looking to model the take-up of means-tested benefits with far more sophistication than has previously been possible, exploiting a combination of theoretical advances and new data sources. The panel elements of the Families and Children Survey and (for older people) the English Longitudinal Study of Ageing provide the best data yet available in the UK for looking at take-up of and eligibility for means-tested benefits and tax credits in particular. They also have the advantage of being panel data sources. We will adapt and extend the methods used for investigating take-up in the Family Resources Survey to these new data.

### Wealth and Housing

The key objectives of future research on portfolios and housing will be to characterise the interrelationship between pension wealth and other forms of financial wealth and housing wealth. Centre researchers have been running the design and collection of the English Longitudinal Study of Ageing (ELSA), which will provide the first data (for the UK at least) with which these co-relationships can be calculated. These pension wealth calculations and analysis will provide an important evidence base both for current policy research and for the exploration of wealth accumulation and decumulation processes over the life cycle in the UK. In addition, the ongoing collection of the ELSA data (with the second wave in the field during 2004) will enable detailed wealth and portfolio dynamics to be researched, along with the ways in which these vary with other factors, such as health, income and social factors.

Particularly important will be variation with cognitive ability and the nature of financial expectations and uncertainties, and we will set up research looking at financial portfolios (and particularly retirement saving portfolios) and the degree to which these vary with such cognitive factors. The future agenda will also encompass issues related to the importance of housing wealth as a form of retirement saving, the dynamics of housing consumption in the presence of fixed costs, and the degree to which the models of housing wealth over the life cycle in the presence of house price volatility, developed at the Centre in recent years, can explain the trajectories of housing wealth in later life. Finally, Centre researchers will continue to be involved in the design and collection of more extensive and higher-quality data on wealth in the UK.

## **Pensions and Retirement**

International collaborative research into the issues surrounding the design of state pension systems will continue. To date, this work has focused on individual retirement behaviour and the public purse. The next stage will emphasise how state pension systems affect the well-being of the elderly population. A number of different measures of well-being will be investigated, such as income, consumption, health and self-reported well-being. Where possible, we will exploit variations over time in the generosity of state pensions in order to examine how such benefits affect these outcomes.

Changes in private pension saving will be investigated further using both aggregate and micro data. In particular, given the introduction of stakeholder pensions in April 2002, we will examine recent changes in pension coverage among key groups of policy interest, such as middle earners and those who work for smaller employers.

We will use ELSA data to investigate the expectations of individuals aged 50 and over – for example, whether they expect to have inadequate resources for their retirement – and how these expectations are related to the pension arrangements that people have. This work will feed into the Pensions Commission's work looking into the extent to which individuals are making appropriate retirement saving decisions.

## **Company Taxes and Investment**

Future work on company taxation will complete existing projects on the effects of changes to UK dividend taxation, and the behaviour of UK corporation tax revenues.

Future work on company investment will compare the effects of higher uncertainty on investment behaviour in the UK and the USA, consider the relationship between uncertainty and firms' holdings of liquid financial assets, and develop procedures for estimating structural models of investment under uncertainty using simulated minimum distance methods.

Future work on the financial behaviour of innovative firms will extend our current work that uses an input measure of innovative activities (R&D intensity) to consider also differences between firms using output measures, such as total factor productivity levels or growth rates. Important questions in this context will be to what extent the differences in financing patterns between more innovative and less innovative firms are accounted for by differences in investment levels, and whether there are important differences at a given level of investment.

## Productivity and Innovation

Research will continue to investigate how the threat of entry, and the degree of product market competition, affect both innovative activity and productivity growth. Work in this area will continue to use firm- and establishment-level data-sets combined with detailed information on policy reforms to the UK economy in order to identify causal effects resulting from changes in entry conditions and changes in the extent of product market competition. Research will also examine alternative empirical measures of competition proposed in the theoretical literature.

Our work on the organisation of firms has so far focused on the manufacturing sector; however, increasing attention has been drawn to firms outsourcing service activities both within the UK and abroad. Research in this area will look at patterns of vertical integration between firms and industries in the UK. We will also look specifically at the business services sector and the outsourcing of these activities. Further work will begin to link in product-level information on imports to UK establishment-level data, in order to examine the effects on performance of import competition in an establishment's own industry and in upstream and downstream sectors.

We will begin to build up new information on the national innovation system in the UK, by combining detailed establishment-level data on businesses' R&D activity with information on the research base – for example, the location and expertise of research universities. We will also continue to describe which types of firms (e.g. by location, by industry, by size) are conducting R&D and how it is funded, and will look at how R&D activity is structured across and within firms. Work in this area will also look at recent government initiatives to reform policy towards innovation and technology transfer in the UK.

Our earlier work looking at the impact of product market reforms on innovation and growth has used macroeconomic data. A major concern we have about the results of this work is that there is substantial firm and industry heterogeneity that is not captured, and may be affecting our results. We would therefore like to extend this work (a) to use microeconomic data across countries (in particular, to compare the UK and Germany) and (b) to look at the interactions between reforms to product markets and reforms to labour markets.

## Understanding the Impact of Early Childhood Interventions

One key area of current government policy interest is the impact of early childhood interventions on later education and labour market outcomes. This issue has been difficult to examine to date because of lack of suitable data. There are, however, a number of new data-sets that will allow this important issue to be examined over the coming years. During 2004, we plan to start setting up some of these data-sets and undertaking some initial descriptive analysis.

Our main focus will be in setting up and analysing the first wave of the new Millennium Cohort Study (MCS) which follows a cohort of children born in the UK in 2000 and 2001. This data-set has a wealth of information on the mother's pregnancy, family background, childcare arrangements, household structure and situation which will allow us to provide an up-to-date account of the family circumstances of children who were born at the beginning of the millennium. The sample design means that we will also be able to pay particular attention to the situation of ethnic minorities and other disadvantaged groups in the community (as these have been over-sampled).

## Higher Education Reforms

In 2004, we will update and extend our work on higher education (HE) finance. First, we will extend our analysis of the HE funding reforms to consider the implications of the government's evolving reforms for individuals from different family backgrounds – both as students and as graduates – as well as to monitor the likely public expenditure consequences of any further amendments that may be made.

Secondly, we will extend our analysis of HE choices by estimating the wage benefits to HE over a lifetime, i.e. how much more graduates earn over their lifetimes relative to non-graduates. We will discuss the key issues involved in estimating individual returns to HE over a lifetime, and will use the Labour Force Survey to estimate the present value of additional earnings that accrue to graduates. We will account for differences in taxation across graduates and non-graduates, as well as differences in the abilities of graduates and non-graduates, and the ensuing biases that may arise in comparing earnings profiles.

Thirdly, we will carefully assess the options for evaluating the impact of the introduction of tuition fees on education choices. In particular, we will investigate the possibility of exploiting differences in the current system of tuition fees between young people from England and Scotland, and from low-income and high-income backgrounds, in order to explain how education choices are affected by changes in financial incentives.

## Monitoring Trends in Income Inequality and Poverty

Co-funding from the Centre will allow us to continue our work understanding the trends in inequality over the 1990s in Britain. Drawing on interesting new developments in the empirical literature both on income and consumption inequality and on the evolution of top incomes in different countries, this work will aim to untangle what has happened to inequality in material living standards in the 1990s. We will start from the basic observation that while income inequality was broadly flat over the first half of the 1990s, inequality in household expenditure *fell* over the first half of the 1990s. By contrast, in the latter half of the 1990s, inequality in both income and expenditure rose. However, a closer look at both series shows that many of the changes in inequality we have noted are driven by changes at the very top of both distributions (the top 1%). Our research will investigate this phenomenon further, and will also examine the extent to which changes in inequality are determined by changes within or between population groups. This research is co-funded by the Nuffield Foundation.

Centre funding will also allow us to continue our assessment of changes in poverty in Britain. In particular, we will assess the new child poverty measure announced by the Department for Work and Pensions in December 2003, and how this measure is likely to affect both who is judged to be poor and how future government policy aimed at eradicating child poverty will evolve.

## Consumption Inequality and Income Uncertainty

While the pattern of income and wage inequality in the USA for the 1980s and the 1990s is well documented, the evidence on the evolution of consumption inequality over the same period is much less clear. Our research using recall and diary data from the Consumer Expenditure Survey (CEX) has characterised the most likely pattern of consumption inequality for the 1990s. In particular, our results indicate increasing consumption and wage inequality over this period, in sharp contrast, as far as consumption is concerned, to the findings of previous studies. We will extend our work to obtain a complete picture for the

evolution of consumption and income inequality during the 1980s. We will use information from the two survey components of the CEX together with information from the Panel Study of Income Dynamics (PSID).

## **Welfare Measurement and Consumer Behaviour**

We plan to begin work on testing models of consumer behaviour using consumer panel data. The aim will be, first, to characterise departures from the straightforward economic definition of rational choice using a number of measures, and, secondly, to investigate consumer panel data to look at the question of predictability of consumer behaviour and at the correlations between periods of unpredictability and changes in the circumstances of households. In doing this, it will be necessary to gain access to a number of new, commercially collected, data-sets, and so the first steps will involve comparisons of these new data with existing public access data such as the Expenditure and Food Survey.

We plan to develop our work on the consumer characteristics models with particular reference to unobserved characteristics and to non-linear characteristic/market goods relationships. We have also made the first steps in a project on the closely related area of tests for latently separable preference structures.

## **11. REQUESTS TO THE BOARD**

None.

## **Appendix 1. HIGHLIGHTS FOR RESEARCH PRIORITIES BOARD: Scientific Advances and Communication**

### **Scientific Advances**

Here we present three advances. A more detailed description of research findings from Centre research over this period is presented in Section 7.

#### **A Non-Parametric Analysis of Consumer Rationality and Consumer Demand Responses**

Measuring the demand responses of consumers to variation in prices and income is at the centre of applied welfare economics, it is a vital ingredient of tax policy reform analysis and it is also key to the measurement of market power in modern empirical industrial economics. Parametric models have dominated applications in this field but, we argue in our recent research at the Centre, this is both unwise and unnecessary. To quote Nobel Laureate Dan McFadden in his presidential address to the Econometric Society: ‘parametric models interpose an untidy veil between econometric analysis and the propositions of microeconomic theory’.

There are three key objectives of this research: first, to provide a powerful test of integrability conditions on individual household data without the need for parametric models of consumer behaviour; secondly, to provide tight bounds on welfare costs of relative price and tax changes; thirdly, to provide tight bounds on demand responses (and elasticities) to relative price and tax changes. The aim is to allow these response parameters to vary across points in the income distribution in a fully non-parametric way. Parametric models place strong assumptions on both income and price responses, and in our research we accomplish all that is required from parametric demand models with only nonparametric regression and revealed preference theory. The idea is to fully exploit micro data on consumer expenditures and incomes across a finite set of discrete relative price or tax regimes. The objectives are achieved by combining the theory of revealed preference with the semi-parametric estimation of consumer expansion paths (Engel curves).

We have also extended this research to consumer characteristics models. These models suppose that consumers’ preferences are defined over the attributes of market goods rather than the goods themselves. We have derived the minimal necessary and sufficient empirical conditions under which data on the market behaviour of heterogeneous, price-taking, individual consumers are non-parametrically consistent with the consumer characteristics model. Where these conditions hold, we show how information may be recovered on individual consumers’ marginal valuations of product attributes. Where the conditions fail, we highlight the role that the introduction of unobserved product attributes can play in rationalising the data. We have applied these ideas to consumer panel data on differentiated products.

#### **Collective Models of Labour Supply**

In this research the decisions made by a household are considered as the outcome of decisions taken by its individual members according to some bargaining rule or other form of collective decision-making. The key challenge in this research has been to identify and estimate the preference functions of the individual decision-makers as well as the mechanism by which they share resources, based on data where many of these decisions, such as consumption, are observed as aggregate household outcomes. In our work we have derived results showing identification of preferences when the man in the couple can only choose whether to work or

not, but does not choose (or care much about) hours; his partner chooses both whether to work or not and the number of hours. The modelling approach, applied to UK data for 1978 to 1995, was motivated by the fact that practically no men work part-time. In a recent extension, we also show that the identification results hold when the man also chooses hours of work. Moreover, we generalise the model to allow the preferences of each partner to vary with the work status of the other partner.

The initial framework we developed does not allow for public goods (such as expenditures on children) other than the interdependence on work status. However, we have also recently derived identification results in this much more general framework with public goods. The framework we develop is of particular usefulness in understanding how best to target expenditures to children. The key result we derive is that in order to increase the expenditures allocated to children, transfers need to be made to that member of the household whose marginal utility to spend on children is most sensitive to changes in income. This contrasts with the widely held view that expenditures should be allocated to the household member with the highest marginal utility of child expenditures (often taken to be the mother).

### **General Equilibrium Models of Policy Evaluation**

Most of the literature on policy evaluation focuses on the direct effects of the policy, or programme, under consideration. This has been the case for most of our work on taxation and labour supply and the impact of active labour market programmes such as the New Deal for Young People. These direct effects are commonly understood as the direct effects on participants or on a randomly chosen individual. Individual information is used to assess the benefits of the intervention, the main challenge being to identify the correct counterfactual. A crucial assumption of these methods is that non-participants' outcomes are not affected by the existence of the policy, exhibiting the same behaviour that would have been observed were there no programme taking place. That is, the existence of indirect effects is ruled out. The importance of such an assumption depends mainly on the characteristics of the policy being evaluated. A small, very focused programme is unlikely to have strong implications on the wider economy. In its turn, a programme with global implementation, defined by precise rules and effective treatments, is expected to have broader effects through substitution, displacement and prices.

Research at the Centre has begun a longer term analysis of the importance of general equilibrium (GE) effects in policy evaluation – something that we expect will become more central to our policy analysis in coming years. Our research to date has developed a GE model of savings, skills and human capital, and labour supply. Idiosyncratic uncertainty under risk aversion is considered, along with fixed costs of working and discrete working and studying choices. The model parameters are shown to be identifiable with currently available data.

Several aspects of labour market policies can be simulated within the model and evaluations of the overall effects of interventions can be performed. We have so far solved the model for the steady state and simulated the impact of stylised wage and tuition subsidies. Based on the rich simulated data, we have assessed the long-run effects of these policies and detailed their economic origins by decomposing the overall effect. GE effects were often found to be as important as the commonly computed partial equilibrium (PE) effects, potentially altering the conclusions obtained under PE.

### **Communication**

As ever, the IFS Green Budget and the Budget itself generated a range of opportunities for communication with policy-makers, business, the professions and the general public. As these

events were covered in our last report (October 2001 – December 2002), we concentrate here on three other communication highlights, which we feel give a flavour of the cross-section of audiences reached and themes addressed over the year.

### **Higher Education Funding Proposals: Talking to Parliament**

During ESRC Social Science Week, Centre staff launched a report about the government's higher education funding proposals, laid out in the White Paper, *The Future of Higher Education*. The report, '*Study Now, Pay Later*' or '*HE for Free*'? *An Assessment of Alternative Proposals for Higher Education Finance*, compared the government's proposals with those of the Conservatives, looking at the effect on student and graduate finances, the distributional impact on households with different incomes, and the cost to the exchequer and to taxpayers in general.

When funding for higher education was discussed in the House of Commons on 25 June, our research was quoted by both Labour and Conservative (and Plaid Cymru) politicians to support the case for their particular proposals. Charles Clarke, Secretary of State for Education and Skills, said, 'If we are looking for an authoritative assessment of the alternative proposals, we need to look no further than the report published today by the Institute for Fiscal Studies'. Throughout the year, the Press Office dealt with calls about HE funding from a range of MPs from all the main political parties, enquiring about the research and asking for various details to be supplied and calculations to be carried out.

A briefing was held to launch the work. About 40 people attended, including journalists, civil servants, academics and members of interest groups from the HE sector. National papers, including the *Financial Times*, *The Times* and *The Guardian* cited the research in their coverage of the debate, and the authors gave interviews on BBC television and Radio 4. The report was also made available free of charge on the IFS website. It was downloaded by 585 visitors during Social Science Week alone, and by 245 the following week.

As the debate continued over the next few months and into the autumn, IFS researchers wrote an article for the *Evening Standard* containing updated figures reflecting the discussion at the time about possible changes (seen in part as 'concessions' to critics within the Labour Party) that the government might make to its proposals. A Press Release elaborating on this article was also issued to set out the arguments more fully. Journalists and broadcasters made frequent demands upon Centre staff to explain and respond to aspects of the ongoing discussion, including several appearances on the BBC's *Newsnight*, which ran a series of programmes dedicated to the HE funding issue.

Subsequently, researchers worked on a Briefing Note to coincide with the Commons' vote on the HE Finance Bill in January 2004. This note drew on previous calculations made for the original report and during the debate that followed. The aim was to address changes that had been made to the original White Paper as a result of a complex set of 'concessions'. Whereas our original report had concentrated particularly on the likely distributional outcomes of the proposals for the whole population, this time we expanded on the possible costs or benefits for different graduates, earning a range of potential salaries, and on the public spending implications of the reforms.

Dearden, L., Fitzsimons, E. and Goodman, A. (2003), *An Analysis of the Higher Education Reforms*, IFS Briefing Note, forthcoming.

Dearden, L. and Goodman, A. (2003), 'A battle being fought for the principle rather than the sums', *Evening Standard*, 4 December.

Goodman, A. and Kaplan, G. (2003), '*Study Now, Pay Later*' or '*HE for Free*'? *An Assessment of Alternative Proposals for Higher Education Finance*, IFS Commentary 94.

## **The Economics of Ageing: Talking to Academia**

### *Third Workshop of the RTN Project on Economics of Ageing Institute for Fiscal Studies, 2–4 October 2003*

In October 2003, IFS hosted an international conference on the economics of ageing, co-funded by the Centre and the EU-funded Research and Training Network on the Economics of Ageing. Annual meetings of the network take place at different locations across Europe, hosted in turn by the institutions it comprises. In addition to IFS, these are:

- Department of Economics and Statistics, University of Salerno;
- Institute of Economics, University of Copenhagen;
- Department of Economics, University of Cyprus;
- Mannheim Research Institute for the Economics of Ageing, University of Mannheim;
- Department of Economics, University of Venice;
- Centre for Economic Research (CentER), Department of Economics, Tilburg University;
- Department and Laboratory of Applied and Theoretical Economics (DELTA), École Normale Supérieure, Paris.

The aim of the network is to foster academic debate and to share different countries' experiences, research findings and ideas about the important topic of the economics of ageing. The network also acts as a forum to provide training and development for young researchers. In particular, junior researchers are encouraged to present papers themselves, with their more senior co-authors and other colleagues attending the workshops and often acting as discussants.

In addition to around 70 academics from the UK, Europe and the USA, the conference was attended by representatives from the Cabinet Office, HM Treasury and the Bank of England. Keynote speeches were given by Richard Blundell, on modelling early retirement and labour supply, and by James P. Smith (RAND) on the relationship between health and socio-economic status. Andrew Dilnot, IFS Research Fellow, former Director of the Institute and now Principal of St Hugh's College, Oxford, then gave a talk about presenting academic findings to a policy audience.

## **'Where Do You Fit In?': Talking to the Public**

Every year, IFS is responsible for checking the government's Households Below Average Income figures on behalf of the Department for Work and Pensions. In March 2003, we produced three reports as part of our analysis of these data. The first focused on the government's goal to 'abolish pensioner poverty', considering how the government set out to implement this aim and what the effects had been. The authors examined pensioners' standards of living over time and in comparison with other groups. They also looked at problems with take-up and how the government might hope to tackle future challenges.

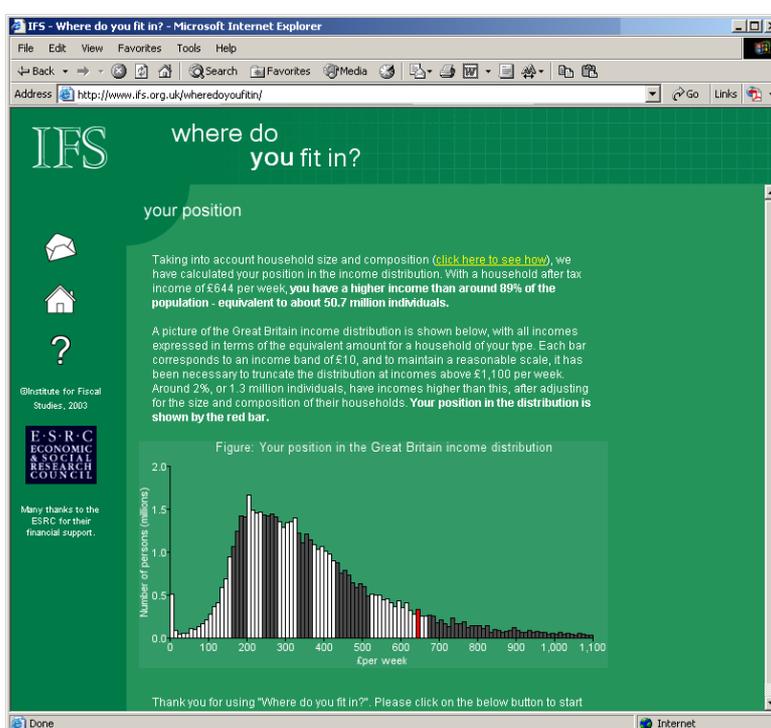
Two Briefing Notes were published to accompany this analysis. The first looked at child poverty, an area the government has chosen to concentrate on since early in its first term of office. The second looked at trends in inequality since Labour came into power in 1997.

A briefing was held to launch these pieces of work, attended by about 50 people, including civil servants, journalists, academics and members of special interest groups. Press coverage included articles in all the national broadsheets in the wake of the launch, as well as many subsequent references to the work. Our work on poverty and inequality was regularly cited by interest groups: for example, the Child Poverty Action Group used the work on the most cost-

effective ways to achieve the government's child poverty target to underpin its 'Make it a Fiver Gordon!' campaign for higher child tax credit payments.

From our interactions with journalists across the political spectrum, we observed that there was a lack of clarity about the way income is distributed across the population. References to the 'middle classes', 'Middle Britain' and 'average families' often fail to reflect the kind of earnings that would really be found in the middle of the income scale. In response to these concerns, Centre staff produced a Briefing Note entitled *Is Middle Britain Middle-Income Britain?*, which describes the income distribution in the UK, discusses how distribution might be measured and pinpoints the mean and median rates of income, explaining the use of equivalence scales and identifying those families that might be described as 'middle-income'. The note goes on to examine what common characteristics, other than income, can be identified among the people to be found in the middle deciles, and looks at other ways of defining 'middle Britain' – for instance, by basing calculations on the median income of workers rather than including everyone in the income distribution.

### 'Where Do You Fit In?' online model on the IFS website



The Briefing Note was launched in September along with an interactive online model, 'Where Do You Fit In?', which prompts visitors to the site to enter some basic information about their circumstances and incomes. The model then plots the visitor's position in the income distribution on a graph and explains what this implies. For those who are interested, we included links to a discussion of related questions, such as which data-sets are used by the models, how equivalence scales are calculated and which measures of income we are using.

The model and the Briefing Note received coverage in the written media and on BBC News Online when they were launched. They have subsequently been used and referred to by a range of journalists across the print and online media. We hope that this has made and will continue to make a small contribution to the public's understanding of an issue that lies at the heart of much political debate and informs public opinion about the kind of society we live in.

In addition, an unusual and welcome aspect of the feedback from this work was the number of emails received from members of the public who had used the model.

Brewer, M., Goodman, A. and Shephard, A. (2003), *How Has Child Poverty Changed under the Labour Government? An Update*, IFS Briefing Note 32.

Goodman, A., Myck, M. and Shephard, A. (2003), *Sharing in the Nation's Prosperity? Pensioner Poverty in Britain*, IFS Commentary 93.

Shephard, A. (2003), *Inequality under the Labour Government*, IFS Briefing Note 33.

Wakefield, M. (2003), *Is Middle Britain Middle-Income Britain?*, IFS Briefing Note 38.

**Appendix 2. STAFF**

<b>Name</b>	<b>Grade (December 2003)</b>	<b>Time spent on Centre work (%)</b>	<b>Comments</b>
Stuart Adam	RE7	48	
Orazio Attanasio	Prof	35	
James Banks	DD	35	
Erich Battistin	RE9	55	
Laura Blow	SRE9	35	
Richard Blundell	RD	80	
Steve Bond	PD	35	
Renata Bottazzi	PhD	100	
Mike Brewer	SRE6a	35	
Maria Casanova	PhD	100	
Robert Chote	D	35	
Ian Crawford	PD	35	
Lorraine Dearden	PD	35	Maternity leave until September
Carl Emmerson	SRE9a	35	
Emla Fitzsimons	PhD	100	Until end of September
Alissa Goodman	SRE8a	35	
Rachel Griffith	PD	35	
Alex Klemm	SRE3	48	
Andrew Leicester	RE7	48	
Olivier Marie	PhD	100	
Costas Meghir	DRD	60	
Gillian Paull	SRE7a	35	Until end of June
Howard Reed	SRE10a	35	
Barbara Sianesi	SRE5	35	
Helen Simpson	SRE7	35	
Matthew Wakefield	SRE3	48	
Frank Windmeijer	PC	35	
Chantal Crevel-Robinson	SS	46	
Jenny Williams	Sec	20	Until end of September
Michael Devereux	RF	50	
Richard Disney	RF	50	
Alan Duncan	RF	50	
Hamish Low	RF	50	
Ian Preston	RF	50	
Stephen Redding	RF	50	
Ian Walker	RF	50	
Christian Dustmann	RA	50	
Amanda Gosling	RA	50	
Jonathan Haskel	RA	50	

### **Appendix 3. TRAINING**

PhD, Economics, University College London	Completed Ongoing	Emla Fitzsimons Laura Blow Renata Bottazzi Maria Casanova Christine Frayne Rupert Harrison Alex Klemm Olivier Marie Matthew Wakefield
MSc, Economics, University College London	Completed Ongoing	Christine Frayne Stuart Adam Andrew Leicester
ESRC media training course		Alissa Goodman

## Appendix 4. PERFORMANCE INDICATORS

### A. Publications

#### 1. Books

- Adam, S. and Brewer, M. (2004), *Supporting Families: The Financial Costs and Benefits of Children since 1975*, Bristol: Policy Press, forthcoming.
- Card, D., Blundell, R., and Freeman, R. B. (eds) (2004), *Seeking a Premier Economy: The Economic Effects of British Economic Reforms, 1980–2000*, Chicago: National Bureau of Economic Research and University of Chicago Press, forthcoming.
- Chote, R., Emmerson, C. and Simpson, H. (eds) (2003), *The IFS Green Budget: January 2003*, Commentary 92, London: IFS.
- Goodman, A. and Kaplan, G. (2003), 'Study Now, Pay Later' or 'HE for Free'? An Assessment of Alternative Proposals for Higher Education Finance, Commentary 94, London: IFS.
- Goodman, A., Myck, M. and Shephard, A. (2003), *Sharing in the Nation's Prosperity? Pensioner Poverty in Britain*, Commentary 93, London: IFS.
- Marmot, M., Banks, J., Blundell, R., Lessof, C. and Nazroo, J. (eds) (2003), *Health, Wealth and Lifestyles of the Older Population in England: The 2002 English Longitudinal Study of Ageing*, London: IFS.
- Miles, D., Myles, G. and Preston, I. (eds) (2003), *The Economics of Public Spending*, Oxford University Press.

#### 2. Book chapters

- Adam, S. and Reed, H. (2003), 'Income tax and National Insurance contributions', in R. Chote, C. Emmerson and H. Simpson (eds), *The IFS Green Budget: January 2003*, Commentary 92, London: IFS.
- Attanasio, O., Meghir, C. and Székely, M. (2003), 'Using randomized experiments and structural models for "scaling up": evidence from the PROGRESA evaluation', *Annual World Bank Conference on Development Economics, 2003*, Washington, DC: The World Bank.
- Attanasio, O. and Vissing-Jorgensen, A. (2003), 'Stock market participation, intertemporal substitution and risk aversion', in *Papers and Proceedings of the American Economic Association, American Economic Review*, forthcoming.
- Banks, J. and Brewer, M. (2003), 'Understanding the generosity of government support to households with children', in J. Bradshaw (ed.), *Children and Social Security*, International Studies in Social Security, vol. 8, Aldershot: Ashgate Publishing Ltd.
- Banks, J. and Casanova, M. (2003), 'Work and retirement', in M. Marmot, J. Banks, R. Blundell, C. Lessof and J. Nazroo (eds), *Health, Wealth and Lifestyles of the Older Population in England: The 2002 English Longitudinal Study of Ageing*, London: IFS.
- Banks, J. and Emmerson, C. (2003), 'Public and private pension spending: principles, practice and the need for reform', in D. Miles, G. Myles and I. Preston (eds), *The Economics of Public Spending*, Oxford University Press.
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- Banks, J. and Oldfield, Z. (2003), 'Income and wealth', in A. Humphrey, P. Costigan, K. Pickering, N. Stratford and M. Barnes (eds), *Factors Affecting the Labour Market Participation of Older Workers*, DWP Research Report 200, London: HMSO.

- Banks, J. and Rohwedder, S. (2003), 'Pensions and life-cycle savings profiles in the UK', in A. Boersch-Supan (ed.), *Life-Cycle Savings and Public Policy: A Cross-National Study of Six Countries*, Academic Press.
- Blanden, J., Goodman, A., Gregg, P. and Machin, S. (2003), 'Changes in intergenerational mobility in Britain', in M. Corak (ed.), *Generational Income Mobility*, Cambridge University Press, forthcoming.
- Blundell, R., Dearden, L. and Sianesi, B. (2003), 'Measuring the returns to education', in S. Machin and A. Vignoles (eds), *The Economics of Education in the UK*, Princeton University Press, forthcoming.
- Blundell, R., Meghir, C. and Smith, S. (forthcoming), 'Pension incentives and the pattern of retirement in the United Kingdom', in J. Gruber and D. A. Wise (eds), *Social Security Programs and Retirement around the World: Micro-Estimation*, University of Chicago Press.
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- Brewer, M. and Gregg, P. (2003), 'Eradicating child poverty in Britain: welfare reform and children since 1997', in R. Walker and M. Wiseman (eds), *The Welfare We Want? The British Challenge to the American Reform*, Bristol: Policy Press.
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- Chote, R., Emmerson, C. and Frayne, C. (2003), 'IFS public finance forecasts', in R. Chote, C. Emmerson and H. Simpson (eds), *The IFS Green Budget: January 2003*, Commentary 92, London: IFS.
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- Midelfart-Knarvik, K. H., Overman, H., Redding, S. and Venables, A. (2003), 'Integration and specialization in the European Union', in G. Basevi, V. Donato and A. O'Connell (eds), *Real Effects of Regional Integration in the European Union and the Mercosur*.
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- Aghion, P., Blundell, R., Griffith, R., Howitt, P. and Prantl, S. (2003), 'Entry and productivity growth: evidence from micro-level data', *Journal of the European Economic Association*, forthcoming.
- Aghion, P., Bond, S., Klemm, A. and Marinescu, I. (2003), 'Technology and Financial Structure: Are Innovative Firms Different?', *Journal of the European Economic Association*, forthcoming.
- Albarran, P. and Attanasio, O. (2003), 'Limited commitment and crowding out of private transfers: evidence from a randomised experiment', *Economic Journal*, vol. 113, pp. C77–C85.
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- Banks, J., Blundell, R. and Smith, J. P. (2003), 'Understanding differences in household financial wealth between the United States and Great Britain', *Journal of Human Resources*, vol. 38, pp. 241–279.
- Battistin, E., Miniaci, R. and Weber, G. (2003), 'What do we learn from recall consumption data?', *Journal of Human Resources*, vol. 38, pp. 354–385.

- Blundell, R., Browning, M. and Crawford, I. (2003), 'Nonparametric Engel curves and revealed preference', *Econometrica*, vol. 71, pp. 205–240.
- Blundell, R. and Pistaferri, L. (2003), 'Income volatility and household consumption: the impact of food assistance programs', *Supplement to Journal of Human Resources*, vol. 38, pp. 1032–1050.
- Blundell, R., Reed, H. and Stoker, T. (2003), 'Interpreting aggregate wage growth', *American Economic Review*, vol. 93, pp. 1114–1131.
- Blundell, R. and Walker, I. (2003), 'WFTC: a review of the issues and evidence', *Economie Publique*, vol. 11, pp. 77–127.
- Bond, S. and Devereux, M. (2003), 'Generalised R-based and S-based taxes under uncertainty', *Journal of Public Economics*, vol. 87, pp. 1291–1311.
- Bond, S., Elston, J., Mairesse, J. and Mulkay, B. (2003), 'Financial factors and investment in Belgium, France, Germany and the UK: a comparison using company panel data', *Review of Economics and Statistics*, vol. 85, pp. 153–165.
- Bonjour, D., Cherkas, L., Haskel, J., Hawkes, D. and Spector, T. (2003), 'Returns to education: evidence from U.K. twins', *American Economic Review*, vol. 93, pp. 1799–1812.
- Brewer, M., Clark, T. and Goodman, A. (2003), 'What really happened to child poverty in the UK under Labour's first term?', *Economic Journal*, vol. 113, pp. F240–F257.
- Clark, T. and Emmerson, C. (2003), 'Privatising provision and attacking poverty? The direction of UK pension policy under new Labour', *Journal of Pension Economics and Finance*, vol. 2, pp. 67–89.
- Crawford, I., Laisney, F. and Preston, I. (2003), 'Estimation of household demand systems with theoretically compatible Engel curves and unit value specifications', *Journal of Econometrics*, vol. 114, pp. 221–241.
- Devereux, M. and Griffith, R. (2003), 'Evaluating tax policy for location decisions', *International Tax and Public Finance*, vol. 10, pp. 107–126.
- Devereux, M., Griffith, R. and Simpson, H. (2003), 'The geographic distribution of production activity in the UK', *Regional Science and Urban Economics*, in press.
- Devereux, M. and Hubbard, R. G. (2003), 'Taxing multinationals', *International Tax and Public Finance*, vol. 10, pp. 469–487.
- Devereux, M. and Lanot, G. (2003), 'Measuring tax incidence: an application to mortgage provision in the UK', *Journal of Public Economics*, vol. 87, pp. 1747–1778.
- Devereux, M., Spengel, C. and Lammerson, L. (2003), 'Corporate taxes and inefficiency in Europe', *National Tax Journal*, Proceedings of 95<sup>th</sup> Annual Conference 2002, pp. 226–235.
- Disney, R. (2003), 'Public pension reform in Europe', *World Economy*, vol. 26, pp. 1425–1446.
- Disney, R., Haskel, J. and Heden, Y. (2003), 'Entry, exit and establishment survival', *Journal of Industrial Economics*, vol. 51, pp. 91–112.
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- Emmerson, C. and Wakefield, M. (2003), 'Increasing support for those on lower incomes: is the Saving Gateway the best policy response?', *Fiscal Studies*, vol. 24, pp. 167–195.
- Griffith, R., Redding, S. and Van Reenen, J. (2003), 'R&D and absorptive capacity: theory and empirical evidence', *Scandinavian Journal of Economics*, vol. 105, pp. 99–118.
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- Haskel, J. and Slaughter, M. (2003), 'Have falling tariffs and transportation costs raised U.S. wage inequality?', *Review of International Economics*, vol. 11, pp. 630–650.
- Low, H. and Maldoom, D. (2004), 'Optimal taxation, prudence and risk sharing', *Journal of Public Economics*, forthcoming.
- Meghir, C. and Pistaferri, L. (2004), 'Income variance dynamics and heterogeneity', *Econometrica*, forthcoming.
- Redding, S. and Schott, P. (2003), 'Distance, skill deepening and development: will peripheral countries ever get rich?', *Journal of Development Economics*, vol. 72, pp. 515–541.
- Redding, S. and Venables, A. (2003), 'South-East Asian export performance: external market access and internal supply capacity', *Journal of Japanese and International Economies*, vol. 17, pp. 404–431.
- Sianesi, B. (2004), 'An evaluation of the Swedish system of active labour market programmes in the 1990s', *Review of Economics and Statistics*, forthcoming.
- Sutton, M., Gravelle, H., Morris, S., Windmeijer, F., Leyland, A., Dibben, C. and Muirhead, M. (2003), 'Modelling supply and demand influences on the use of health care: implications for deriving a needs based capitation formula', *Health Economics*, vol. 12, pp. 985–1004.
- Windmeijer, F. (2004), 'A finite sample correction for the variance of linear efficient two-step GMM estimators', *Journal of Econometrics*, forthcoming.

#### 4. Non-refereed journal articles

- Battistin, E. and Rettore, E. (2003), 'Eligible non-participants and ineligible individuals as a double control group in regression discontinuity designs', *Proceedings of Statistics Canada Symposium*.
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- Griffith, R. and Klemm, A. (2003), 'What has been the tax competition experience of the last 20 years?', *Tax Notes International*, forthcoming.
- Harrison, R. (2004), 'R&D tax credits', *Economic Review*, forthcoming.
- Leicester, A. (2003), 'Thinking about inequality', *Fiscal Policy*, vol 21, no. 2.
- Syed, M. (2003), 'When in doubt: the effects of uncertainty on business investment', *Economic Review*, vol. 21, no. 3, pp. 32–33.
- Walker, I. and Zhu, Y. (2003), 'Education, earnings and productivity: recent UK evidence', *Labour Market Trends*, vol. 111, pp. 145–152.

#### 5. Other publications

- Adam, S. and Shaw, J. (2003), *A Survey of the UK Tax System*, IFS Briefing Note 9, update of previous version.
- Attanasio, O., Battistin, E. and Ichimura, H. (2003), 'What really happened to consumption inequality in the US?', NBER Working Paper, forthcoming.
- Basu, S., Emmerson, C. and Frayne, C. (2003), 'An examination of the IFS corporation tax forecasting record', IFS Working Paper 03/21.
- Battistin, E. (2003), 'Errors in survey reports of consumption expenditures', IFS Working Paper 03/07.
- Battistin, E. and Chesher, A. (2003), 'The impact of measurement error on evaluation methods based on strong ignorability', unpublished.
- Battistin, E. and Rettore, E. (2003), 'Another look at the regression discontinuity design', cemmap Working Paper 01/03.
- Bernard, A., Redding, S., Schott, P. and Simpson, H. (2003), 'Relative wage variation and industry location', NBER Working Paper 9998 and IFS Working Paper 03/17.

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- Bloom, N., Bond, S. and Van Reenen, J. (2003), 'Uncertainty and company investment dynamics: empirical evidence for UK firms', CEPR Discussion Paper 4025.
- Blow, L. (2003), 'Demographics in demand systems', IFS Working Paper 03/18.
- Blow, L. (2003), 'Explaining trends in household spending', IFS Working Paper 03/06.
- Blow, L., Browning, M. and Crawford, I. (2003), 'Nonparametric methods for the consumer characteristics model', mimeo, November 2003.
- Blow, L. and Crawford, I. (2004), 'Valuing a new good', IFS Working Paper, forthcoming.
- Blow, L., Leicester A. and Smith, Z. (2003), *London's Congestion Charge*, IFS Briefing Note 31.
- Blundell, R., Brewer, M., Duncan, A., Reed, H. and Shephard, A., *The Employment Impact of Recent Labour Market Reforms*, forthcoming (co-funded with the Bank of England).
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- Blundell, R. and Emmerson, C. (2003), 'Fiscal effects of reforming the UK state pension system', IFS Working Paper 03/13.
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- Bond, S., Hawkins, M. and Klemm, A. (2003), 'Stamp Duty on Shares and its Effects on Share Prices' mimeo, Institute for Fiscal Studies.
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- Brewer, M. (2003), *The New Tax Credits*, IFS Briefing Note 35.
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- Brewer, M. and Emmerson, C. (2003), *Two Cheers for the Pension Credit?*, IFS Briefing Note 39.
- Brewer, M. and Goodman, A. (2003), 'Child poverty in the UK, and the effectiveness of the government's strategy to eradicate it', evidence to the Work and Pensions Select Committee, published in HC 85-ii (2004), *Child Poverty in the UK, Volume II*, House of Commons Work and Pensions Committee First Report of Session 2003–04, forthcoming.
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- Brewer, M. and Paull, G. (2003), 'How can suitable, affordable childcare be provided for all parents who need it to enable them to work?', evidence to the Work and Pensions Select Committee, published as IFS Briefing Note 34 and in HC 564-ii (2003),

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- Frayne, C. (2003), 'Planning the public finances', *IFS Update*, Summer 2003, pp. 5–6.
- Griffith, R. and Harrison, R. (2003), *Understanding the UK's Poor Technological Performance*, IFS Briefing Note 37.
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- Griffith, R., Harrison, R., Haskel, J. and Sako, M. (2003), *The UK Productivity Gap and the Importance of the Service Sectors*, IFS Briefing Note 42 and Advanced Institute of Management Briefing Note.
- Goodman, A., Kaplan, G. and Walker, I. (2003), 'Understanding the effects of early motherhood in Britain', draft report for the Treasury's Evidence Based Policy Fund.

- Harrison, R. and Simpson, H. (2003), 'Giving credit where it's due', *Cambridge Manufacturing Review*, Winter 2003.
- Haskel, J., Hawkes, D. and Pereira, S. (2003), 'Skills and productivity in the UK using matched establishment, worker and workforce data', CeRiBA draft paper.
- Haskel, J. and Khawaja, N. (2003), 'Productivity in UK retailing: evidence from micro data', CeRiBA draft paper.
- Leicester, A. and Shaw, J. (2003), *A Survey of the UK Benefit System*, IFS Briefing Note 13, update of previous version.
- Myck, M. and Reed, H. (2003), 'Labour Supply Estimation Project Report 2: A dynamic model of labour market transitions and work incentives', unpublished report to HM Treasury, Inland Revenue and Department for Work and Pensions.
- Myck, M. and Reed, H. (2003), 'Labour Supply Estimation Project Report 3: Model of labour market transitions – estimation and results', unpublished report to HM Treasury, Inland Revenue and Department for Work and Pensions.
- Myck, M. and Reed, H. (forthcoming), *Including the Disabled in a Dynamic Model of Labour Supply and Labour Market Transitions*, Department for Work and Pensions Research Report.
- Redding, S. and Venables, A. (2003), 'Yawning gaps', *Centrepiece*, vol. 8, no. 1, pp. 18–25.
- Shephard, A. (2003), *Inequality under the Labour Government*, IFS Briefing Note 33.
- Sianesi, B. (2003), 'Comments on "Human capital in a global and knowledge-based economy, part II: assessment at the EU country level" by Angel de la Fuente', report for the European Commission, Employment and Social Affairs DG.
- Sianesi, B. (2004), 'Credit constraints and returns to the marginal learner', draft report for the Department for Education and Skills, forthcoming.
- Sianesi, B. (2003), 'Returns to education: a non-technical summary of CEE work and policy discussion', mimeo, IFS and CEE.
- Simpson, H. (2003), 'Regional wage variation and industry location', *IFS Update*, Summer 2003, pp. 10–11.
- Wakefield, M. (2003), *Is Middle Britain Middle-Income Britain?*, IFS Briefing Note 38.
- Wakefield, M. (2003), 'The trust to fund your child?', *IFS Update*, Summer 2003, pp. 2–3.

## 6. Software and data

- Leuven, E. and Sianesi, B. (2003), 'PSMATCH2: Stata module to perform full Mahalanobis and propensity score matching, common support graphing, and covariate imbalance testing', <http://ideas.repec.org/c/boc/bocode/s432001.html>.
- Paull, G., preparation of the data-sets 'British Household Panel Survey Employment Histories' and deposit at the Essex Data Archive.

## B. External Relations

### 1. Membership of committees, editorships and honours

#### Committees

- Banks, J., Research Committee, International Network of Pension Regulators and Supervisors
- Banks, J., Programme Committee, Royal Economic Society Annual Conference
- Banks, J., Programme Committee, European Economic Association Annual Conference
- Banks, J., Review Panel, ESRC UK Longitudinal Studies Centre (University of Essex)
- Blundell, R., Executive Committee, Econometric Society
- Blundell, R., Executive Committee, European Economics Association
- Blundell, R., Scientific Advisory Committee, Centre for Economic Policy Research (CEPR)
- Blundell, R., Scientific Advisory Committee, Economic and Social Data Service (Essex)
- Blundell, R., National Strategy Committee for Longitudinal Data

Blundell, R., Scientific Advisory Committee, Center for Economic Research and Graduate Education (CERGE), Charles University, Prague  
Blundell, R., Scientific Advisory Committee, Centre for Economic Research (CentER), Tilburg University  
Bond, S., ESRC Politics, Economics and Geography Research College  
Bond, S., Programme Committee, Econometric Society European Meeting (ESEM), 2003  
Chote, R., Academic and Policy Board, Oxford Institute for Economic Policy (Oxonia)  
Disney, R., Member, Royal Economic Society Council, 2003–06  
Disney, R., Member, Review Board for Nursing Staff, Health Visitors and Professions Allied to Medicine (NAPRB), 2003–06  
Griffith, R., Local Organising Committee, World Econometric Society Congress 2005  
Griffith, R., Programme Committee, European Economics Association  
Griffith, R., Appointed Member, Royal Economic Society Conference Programme Committee  
Griffith, R., Research Affiliate, Centre for Economic Policy Research (CEPR)  
Griffith, R., Elected Member, Royal Economic Society Committee for Women in Economics  
Haskel, J., Secretary, Conference Committee, Royal Economic Society  
Haskel, J., Member, Competition Commission  
Low, H., Programme Committee, European Economic Association meeting, Stockholm (2003) and Madrid (2004)  
Preston, I., Conference Programme Committee, Royal Economic Society  
Preston, I., Programme Committee, European Economic Association  
Redding, S., Group Leader, Globalisation Programme, Centre for Economic Performance, LSE  
Redding, S., Research Affiliate, International Trade Programme, Centre for Economic Policy Research (CEPR)  
Redding, S., Programme Committee, European Economic Association  
Simpson, H., Member, DTI Steering Group on Gender and Productivity  
Walker, I., Member, Royal Economic Society Council  
Walker, I., Member, Conference Committee, Econometric Society European Meeting (ESEM)  
Windmeijer, F., Programme Committee, Econometric Society European Meeting (ESEM)

### **Editorships**

Attanasio, O., Associate Editor, *Journal of the European Economic Association*  
Attanasio, O., Associate Editor, *Journal of Money, Credit and Banking*  
Attanasio, O., Associate Editor, *Ricerche Economiche: An International Journal*  
Banks, J., Co-Editor, *Research in Economics*  
Blundell, R., Member, Executive Council, *Journal of Econometrics*  
Blundell, R., Member, Editorial Board, *Journal of Economic Literature*  
Blundell, R., Co-Editor, TAPES Issue, 2003, *Journal of Public Economics*  
Blundell, R., Editorial Board, *Fiscal Studies*  
Bond, S., Editorial Board, *Fiscal Studies*  
Disney, R., Editorial Board, *Fiscal Studies*  
Griffith, R., Editor, *Economic Journal Conference Volume*  
Griffith, R., Board Member, *Review of Economic Studies*  
Haskel, J., Associate Editor, *Economica*  
Haskel, J., Editorial Panel, *Economic Policy*  
Meghir, C., Co-Editor, *Econometrica*  
Miles, D., Managing Editor, *Fiscal Studies*  
Myles, G., Managing Editor, *Fiscal Studies*  
Preston, I., Editor, *Economic Journal Conference Volume*  
Simpson, H., Managing Editor, *Fiscal Studies*  
Walker, I., Associate Editor, *Economics Bulletin*  
Walker, I., Editorial Board, *Fiscal Studies*

Windmeijer, F., Co-Editor, *The Econometrics Journal*  
Windmeijer, F., Associate Editor, *Journal of Productivity Analysis*

### **Honours**

Blundell, R., Honorary Fellow, Institute of Actuaries, elected 2003  
Blundell, R., Member, Council of the Econometric Society  
Blundell, R., Honorary Doctorate, University of St Gallen  
Blundell, R., Second Vice President, Econometric Society  
Blundell, R., President, European Economics Association  
Blundell, R., Distinguished Lecture, Tinbergen Centennial Meeting, Rotterdam, May 2003  
Redding, S., Philip Leverhulme Prize Fellowship

## **2. Membership of networks**

Abramovsky, A., Innovation and Employment in European Firms (IEEF)  
Banks, J., 'Scientist in charge' (UK), EU RTN Economics of Ageing in Europe (AGE) Network  
Blundell, R., EU RTN Economics of Ageing in Europe (AGE) Network  
Blundell, R., EU RTN Network on Product Market Structures and Innovation  
Blundell, R., Chairman, EU COST Network Action 23, Labour Market Programme Evaluation  
Bottazzi, R., RTN Economics of Ageing in Europe (AGE) Network, node: University of Salerno  
Griffith, R., EU RTN Network on Product Market Structures and Innovation  
Low, H., Organiser, Public Economics Working Group  
Redding, S., EU RTN Economic Geography of Europe Network: Measurement, Testing and Policy Simulations

## **3. Overseas visitors (more than two days)**

Philippe Aghion, Harvard  
Joe Altonji, Yale  
Andrew Bernard, Tuck School of Business, Dartmouth College, USA  
David Blau, University of North Carolina  
Maurice Bun, Amsterdam  
Xiaohong Chen, New York University  
Jean Pierre Florens, Toulouse  
David Green, University of British Columbia  
James Heckman, University of Chicago  
Peter Howitt, Brown University  
Yukinobu Kitamura, Hitotsubashi University, Japan  
Francis Kramarz, INSEE, Paris  
Arthur Lewbel, Boston College  
Thierry Magnac, CREST, INRA, Paris  
Jacques Mairesse, CREST, Paris  
Charles Manski, Northwestern  
Pierre Mohnen, MERIT University Maastricht  
Aviv Nevo, Berkeley  
Jean-Marc Robin, CREST, INRA, Paris  
John Rust, Yale  
Virginia Sanchez-Marcos, University of Cantabria  
Peter Schott, Yale School of Management, USA  
James P. Smith, RAND

#### **4. Overseas visitors (more than three months)**

Bruce Meyer, Northwestern  
Robert Moffitt, Johns Hopkins University  
Susanne Prantl, WZ Berlin

#### **5. Substantial advice and consultancy**

Emmerson, C., Australian Treasury officials on the UK pension system, February 2003  
Emmerson, C., Foreign Press Association on Budget 2003, March 2003  
Emmerson, C., Korean Institute of Finance on the UK public finances, May 2003  
Emmerson, C., OECD Structural Mission, on UK NHS, education and pensions policy, June 2003  
Emmerson, C., Specialist Adviser to the House of Commons Select Committee on Work and Pensions (July 2002 onwards); in particular involved with its recent enquiry into the future of UK pensions (published April 2003)  
Emmerson, C., IMF on UK public finances, December 2003  
Goodman, A., member, technical experts group providing advice to Department for Work and Pensions on its Child Poverty Measurement Consultation  
Griffith, R., Brick Lane Grid  
Griffith, R., EU DG EcFin ECFIN-E/2002/002, 'The link between product market reforms and macro-economic performance' with Centre for Economic Policy Research  
Griffith, R., HM Treasury, DTI and Inland Revenue on taxation of research and technology organisations  
Haskel, J., member, Competition Commission  
Paull, G., presentation to House of Commons Work and Pensions Committee Inquiry into 'How can suitable, affordable childcare be provided for all parents who need it to enable them to work?' (initial submission and two follow-up pieces), March 2003  
Reed, H., advice to Low Pay Commission on the distributional impact of the minimum wage, January–February 2003  
Reed, H., member, Advisory Group for Joseph Rowntree Foundation – funded project on 'Sim Britain' by Geography Department, University of York  
Reed, H., Northern Ireland Economic Council: consultation on and implementation of a tax–benefit model for Northern Ireland, January–June 2003  
Walker, I., Special Adviser to the House of Commons Select Committee on Culture, Media and Sport

#### **6. Conference papers and seminar presentations**

Acemoglu, D., Aghion, P., Griffith, R. and Zilibotti, F., 'Vertical integration and technology', IIES Stockholm University, 2 September 2003.  
Acemoglu, D., Aghion, P., Griffith, R. and Zilibotti, F., 'Vertical integration, holdup and technology: what do we learn from micro data?', European Economic Association Congress, Stockholm, 20–24 August 2003.  
Adam, S., 'Options for raising revenue', IFS Green Budget conference, 29 January 2003.  
Aghion, P., Bloom, N., Blundell, R., Griffith, R. and Howitt, P., 'Product market competition and growth', Mannheim, 13–15 March 2003.  
— University of Leuven, 29–31 May.  
Aghion, P., Blundell, R., Griffith, R. and Prantl, S., 'Entry, productivity and incumbent innovation', European Economic Association Congress, Stockholm, 20–24 August 2003.  
Aghion, P., Bond, S., Klemm, A. and Marinescu, I., 'Technology and financial structure: are innovative firms different?', CEPR conference on Entrepreneurship, Financial Markets and Innovation, Universitat Pompeu Fabra, Barcelona, 22 November 2003.

- European Economic Association, Stockholm, August 2003.
- Banks, J. Blundell, R., Smith, J. and Smith, Z., 'House price volatility and home ownership', EU RTN Economics of Ageing Network conference, May 2003.
- seminar, Bank of Portugal, Lisbon, October 2003.
- seminar, Tinbergen Institute, Amsterdam, November 2003.
- Banks, J., 'Labour market, pensions and retirement: international trends and the need for comparative research', Socioeconomic Dimensions of an Ageing Population (SEDAP) conference, McMaster University, Toronto, May 2003.
- Banks, J., Invited Discussant, 'The value of increasing health and longevity' by Kevin Murphy, Review of Economic Studies Lecture, Econometric Society European Meeting, Stockholm, August 2003.
- Banks, J., Blundell, R., Emmerson, C. and Oldfield, Z., 'Social security and the well-being of the elderly in the UK', NBER conference, Nafplion, Greece, 18–20 September 2003.
- Banks, J., Smith, Z. and Wakefield, M., 'Financial wealth in later life: evidence from the BHPS', conference of the Royal Economic Society, University of Warwick, 7–9 April 2003.
- Battistin, E., 'Another look at the regression discontinuity design', Annual Meeting of the Royal Economic Society, Warwick, 8–10 April 2003.
- The Regression Discontinuity Method in Economics: Theory and Applications, Banff, Canada, 15–17 May 2003.
- Battistin, E., 'Errors in survey reports of consumption expenditures', RAND Seminar in Aging, Development, and Population, RAND Institute, Santa Monica, 19 May 2003.
- Bureau of Labor Statistics internal seminar, Washington DC, 22 September 2003.
- Berkeley Labor Seminar, Berkeley University, San Francisco, 13 November 2003.
- Battistin, E., 'The impact of measurement error on evaluation methods based on strong ignorability', Centre for Applied Microeconometrics, Copenhagen, 27 November 2003.
- Metrics Lunch Series, Cemmap, London, 9 December 2003.
- Battistin, E., 'What really happened to consumption inequality in the US?', Hard-to-Measure Goods and Services: Essays in Memory of Zvi Griliches, Washington DC, 19–20 September 2003.
- Stanford Applied Microeconomics Seminar, Stanford University, San Francisco, 10 November 2003.
- Bernard, A. B., Redding, S., Schott, P.K. and Simpson, H. 'Factor Price Equalisation in the UK?', Special Session: 'Regional Variation in Employment, Wages and Production Activity in the UK', Royal Economic Society Conference, Warwick University, April 2003.
- Blundell, R., Faculty Lectures, Northwestern University, May.
- Blundell, R., Ely Lectures, Johns Hopkins University, October.
- Blundell, R., Zeuthen Lecture, University of Copenhagen, November.
- Blundell, R., invited lecture, EEA Stockholm.
- Blundell, R., Econometric Society European Meeting, Stockholm.
- Bond, S., 'Conditional investment–cash flow sensitivities and financing constraints', NBER Summer Institute, 22 July 2003.
- Bond, S. and Cummins, J., 'Noisy share prices and the Q model of investment', seminar, Central European University, Budapest, 21 February 2003.
- London School of Economics, 28 February 2003.
- Keele University, 19 March 2003.
- Queen Mary and Westfield College, 26 March 2003.
- Bond, S. and Cummins, J., 'Uncertainty and investment: an empirical investigation using data on analysts' profits forecasts', seminar, University College Dublin, 22 April 2003.
- Department of Economics Workshop, University of Oxford, 1 May 2003.

- Bond, S., Devereux, M.P. and Klemm, A., 'Dividend taxation in a global capital market: theory and evidence for the UK', ESRC Public Economics Working Group conference, University of Warwick, 9 May 2003.
- seminar, Institute for Fiscal Studies, 6 October 2003.
- Inland Revenue, 4 November 2003.
- Bond, S., Harhoff, D. and Van Reenen, J., 'Corporate R&D and productivity in Germany and the UK', NBER conference on R&D, Education and Productivity (in memory of Zvi Griliches), Paris, 26 August 2003.
- CEPR conference on Prices, Productivity and Growth, Banco de Espana, 18 October 2003.
- Bond, S., Klemm, A. and Marinescu, I., 'Distance to frontier, company investment and sources of finance', European Economic Association Congress, Stockholm, 20–24 August 2003.
- Bond, S., Klemm, A., Newton-Smith, R., Syed, M. and Vlieghe, G., 'The roles of expected profitability, Tobin's  $Q$  and cash flow in econometric models of company investment', Gorman Research Workshop in Economics, Oxford, November 2003.
- seminar, European Central Bank, Frankfurt, 26 November 2003.
- South and South East Asia Econometrics Society Meeting, Lahore, Pakistan, December 2003.
- Bond, S. and Windmeijer, F., 'Finite sample inference for GMM estimators in linear panel data models', SFB Workshop: Statistical Modelling of Discrete Structures in Economics, Ludwig-Maximilians University, Munich, 2 July 2003.
- Bottazzi, R., 'Labour market participation and mortgage-related borrowing constraints', European Society for Population Economics 2003 meeting, New York University, June 2003.
- BHPS Users' conference, Colchester, June 2003.
- European Economic Association 2003 conference, Stockholm, August 2003.
- Brewer, M., 'Tax credits and childcare', IFS Pre-Budget Report briefing, 11 December 2003.
- Brewer, M. and Paull, G., oral evidence given to the House of Commons Work and Pensions Committee, 25 March 2003; transcript available at HC 564-ii (2003), *Childcare for Working Parents, Volume II*, House of Commons Work and Pensions Committee Fifth Report of Session 2002–03.
- Chote, R., 'Distributional impact of social security and public spending', Downing Street Policy Directorate, 5 September 2003.
- Chote, R., 'Public sector productivity', Downing Street Strategy Unit, 22 October 2003.
- Chote, R., 'Research priorities for EMU', HM Treasury, 23 October 2003.
- Chote, R., 'Outlook for the Budget', IFS Northwest (Manchester), 4 February 2003.
- Chote, R., 'Challenges for the Chancellor', St Catherine's College Economists Annual Dinner (Cambridge), 7 March 2003.
- Chote, R., 'The Green Paper and New Labour's pension strategy', IMA conference: What Future for Pension Schemes? London, 27 March 2003.
- Chote, R., Budget Preview, BBC journalists' briefing, 31 March 2003.
- Chote, R., Pre-Budget Report Preview, BBC journalists' briefing, 2 December 2003.
- Chote, R., ESRC Parliamentary Budget briefing, Conservatives, 2 April 2003.
- Chote, R., ESRC Parliamentary Budget briefing, Liberal Democrats, 3 April 2003.
- Chote, R., ESRC Parliamentary Budget briefing, Labour, 3 April 2003.
- Chote, R., 'Budget 2003: macroeconomic issues', Treasury Select Committee of House of Commons, 14 April 2003.
- Chote, R., 'Budget 2003: microeconomic issues', Treasury Select Committee of House of Commons, 14 April 2003.
- Chote, R., 'Children and pensioners in poverty: what can government stats tell us?', National Institute of Economic and Social Research, 7 October 2003.
- Chote, R., 'Can we afford the welfare bill?', Financial Services Research Forum, 4 November 2003.

- Chote, R., 'Targets and statistics: holding policymakers to account', Statistics Users Council annual conference, 13 November 2003.
- Chote, R., 'The UK macro framework: lessons learned and challenges ahead', Oxford Institute for Economic Policy (Oxonia), 28 November 2003.
- Chote, R., 'Welfare spending and the public finances', Government Economics Service conference, Sheffield, 3 December 2003.
- Chote, R., 'Monetary and fiscal reform in UK since 1997: lessons for Nigeria', Nigerian Money Market Association, 16 May 2003.
- Crawford, I., 'Nonparametric methods for valuing a new good', University of Cambridge, 19 February 2003.
- Crawford, I., 'Nonparametric methods for demand analysis', HM Customs and Excise, 20 May 2003.
- Office of Fair Trading, 25 November 2003.
- Crawford, I., 'A nonparametric test of stochastic dominance in multivariate distributions', Public Economics Working Group, University of Warwick, 8 May 2003.
- Crawford, I., 'Necessary and sufficient conditions for the consumer characteristics model', McMaster University, 15 October 2003.
- University of Toronto, 17 October 2003.
- University of Cyprus, 29 October 2003.
- University of Southampton, 12 November 2003.
- Criscuolo, C. and Haskel, J., 'Innovations and productivity growth in the UK: evidence from CIS2 and CIS3', Department of Trade and Industry, Comparative Analysis of Enterprise Data conference, City University, September 2003.
- seminar, HM Treasury, October 2003.
- Crossley, T. and Low, H., 'When might unemployment insurance matter? Credit constraints, the life-cycle and the cost of saving', University of Cambridge, October 2003.
- Public Economics Working Group, December 2003.
- Dearden, L., 'Propensity score matching and its applications', Cabinet Office course on Experimental Design, 11 November 2003.
- Dearden, L., Emmerson, C., Frayne, C. and Meghir C., 'The impact of financial incentives on education choice', CEPR conference on The Economics of Education and Inequality, Paris, 16–17 May 2003.
- Disney, R., 'Retirement policy: an international perspective', conference on Pursuing Opportunity and Prosperity, the Melbourne Institute and the Australia 2003 Conference, University of Melbourne, 14 November 2003.
- Disney, R., 'The future of work and retirement', public lecture on behalf of the Retirement Commission and NZ Treasury, Wellington, New Zealand, 27 November 2003.
- Disney, R. and Emmerson, C., 'Pension tenure and job mobility', University of New South Wales, Sydney, 1 December 2003.
- Disney, R., Emmerson, C. and Wakefield, M., 'Ill health and retirement in Britain: a panel data based analysis', Second Workshop of the RTN project on the Economics of Ageing, Naples, 8–10 May 2003.
- plenary session paper, BHPS/ECHP Annual Workshop, University of Essex, 3–4 July 2003.
- National Bureau of Economic Research Summer Institute (Aging), Cambridge, MA, 28–29 July 2003.
- Emmerson, C., 'Achieving simplicity, security and choice in retirement?', Financial Services Authority, 11 June 2003.
- Taxbriefs conference, London, 16 October 2003.
- Emmerson, C., 'Is asset-based welfare "well fair"?', British Bankers Association conference on the Child Trust Fund, 30 September 2003.

- Emmerson, C., 'Measuring public service productivity – how should it be done?', seminar on measuring public services productivity at Cabinet Office Strategy Unit, 22 October 2003.
- Emmerson, C., 'Proposed tax simplification and incentives', Department for Work and Pensions / HM Treasury workshop, 18 February 2003.
- Emmerson, C., 'Taxation and incentives to save for retirement', Centre for the Study of Financial Innovation conference, Pensions in Crisis? Restoring Confidence, 26 February 2003.
- Emmerson, C., 'The tax and benefit system and retirement saving decisions', Society of Financial Advisers conference on Living Healthy, Dying Wealthy, 29 October 2003.
- Emmerson, C., presentation on issues raised by chapter 3 of the Pensions Green Paper ('Informed choice in pensions – choices for individuals'), UBS Pensions Group, London School of Economics, 4 March 2003.
- Emmerson, C., 'Retirement savings decisions', Taxbriefs conference, London, 6 February 2003.
- Emmerson, C., 'IFS public finance forecasts', IFS Green Budget conference, 29 January 2003.
- Emmerson, C., discussant of Luc Arrondel, Hector Calvo-Pardo and Xisco Olivier, 'Testing portfolio choice with a correlated background risk', RTN conference, IFS, London, 3 October 2003.
- Emmerson, C. and Middleton, S., 'Evaluation of Education Maintenance Allowance pilots', University of Surrey Sociology Department, ESRC seminar series, 12 November 2003.
- Fitzsimons, E., 'The effects of risk on education and child labour', UCL Development and Growth seminar, London, February 2003.
- Econometric Society Winter European Meeting, Madrid, October 2003.
- Fitzsimons, E., 'The impact of a conditional education subsidy on the activities of young adults', Dublin Economic Workshop, Dublin, March 2003.
- Frayne, C., 'Planning the public finances', IFS Green Budget conference, 29 January 2003.
- Frayne, C., 'The public finances', IFS Budget briefing, 10 April 2003.
- Frayne, C., 'The public finances', IFS Pre-Budget Report briefing, 11 December 2003.
- Goodman, A., 'Child poverty: an update', IFS poverty briefing, 13 March 2003.
- Griffith, R., 'Regional Selective Assistance and firm location', Athens University, 10 April 2003.
- Frontier Economics, London, 18 June 2003.
- Griffith, R., discussion of 3 year Evidence Based Policy project funded by HMT/DTI/ONS at conference, 31 October 2003.
- Griffith, R., Harrison, R. and Hawkins, M., 'The organisation of R&D in UK firms and its relationship to the manufacturing base', Royal Economic Society Annual Conference, Warwick, April 2003.
- Griffith, R., Harrison, R. and Van Reenen, J., 'Technology sourcing', Stockholm Business School (HHS), 3 September 2003.
- Griffith, R., Harrison, R. and Van Reenen, J., 'Technology sourcing: an empirical analysis using firm-level patent data', ZEW Workshop on Empirical Economics of Innovation and Patenting, Mannheim, 14–15 March 2003.
- 4<sup>th</sup> INIR Workshop, The Economics of Knowledge Spillovers, Université Libre de Bruxelles, 13 September 2003.
- Griffith, R. and Klemm, A., 'What has been the tax competition experience of the last 20 years?', American Enterprise Institute, 9 December 2003.
- Haskel, J., Hawkes, D. and Pereira, S., 'Skills and productivity in the UK using matched establishment, worker and workforce data', Department of Trade and Industry, Comparative Analysis of Enterprise Data conference, City University, September 2003.
- conference, London School of Economics, November 2003.
- Kaplan, G., 'Buy now, pay later or HE for free?', IFS conference 'Assessment of the Higher Education Funding Proposals', 25 June 2003.

- Klemm, A., 'Corporate tax reform', IFS Green Budget conference, 29 January 2003.
- Klemm, A., 'Effective tax rates and tax incidence', OECD workshop on tax burden measures relevant to FDI, Paris, May 2003.
- Klemm, A. 'Formulary apportionment', CEPS, Task force on tax harmonisation meeting, Brussels, May 2003.
- Leicester, A., 'The taxation of housing', IFS Green Budget conference, 29 January 2003.
- Myck, M., 'Sharing the nation's prosperity? Pensioner poverty in Britain', IFS poverty briefing, 13 March 2003.
- Myck, M., 'A dynamic model of labour market transitions', seminar, Department for Work and Pensions, June 2003.
- seminar, HM Treasury, September 2003.
- Myck, M., 'Modelling labour supply of individuals in couples', seminar, Warsaw University, May 2003.
- Preston, I., 'Electoral systems and policy outcomes', Public Economics Working Group, University of Warwick, 2003.
- Preston, I., 'The local labour market impact of immigration in the UK', Special Session on Economics of Immigration, Royal Economic Society, University of Warwick, 2003.
- Redding, S., 'The unequal effects of liberalization: theory and evidence from India', Department of Economics seminar, University College London, March 2003.
- Canadian Institute for Advanced Research Conference, Toronto, March 2003.
- Economics of Industrial Development Conference, London, November 2003.
- Redding, S., 'Factor price equalization in the UK? A general test and evidence', University of Oxford, October 2003.
- Redding, S., 'Product choice and product switching', Department of Economics seminar, Penn State University, April 2003.
- Trade Seminar, Dartmouth College, New Hampshire, April 2003.
- RLAB Conference, London School of Economics, June 2003.
- International Economics Field Seminar, October 2003.
- Redding, S., 'The geography of urban development: evidence from German division and reunification', CEPR Economics of Cities Conference, London School of Economics, June 2003.
- conference on Economic Geography, Hong Kong, December 2003.
- Reed, H., 'Estimating and testing a dynamic model of labour market entry and exit and the tax and benefit system', seminar, Department for Work and Pensions, July 2003.
- seminar, HM Treasury, September 2003.
- Reed, H., 'Poverty traps and work incentives for disabled people', Department for Work and Pensions seminar on Disabled Parents and Employment, November 2003.
- Sianesi, B., 'Evaluating the impact of education on earnings in the UK: models, methods and results from the NCDS', Policy Studies Institute, 5 June 2003.
- Sianesi, B., 'Differential effects of Swedish active labour market programmes for unemployed adults during the 1990s', ESEM conference, Stockholm, 21 August 2003.
- Labour Economics Workshop 'Brucchi Luchino', Milan, 12–13 December 2003.
- Sianesi, B., panel discussant, seminar, 'Human Capital, Employment, Productivity and Growth – Phase II at National Level', European Commission, Employment and Social Affairs DG, Brussels, 21 March 2003.
- Simpson, H., organised a Special Session: 'Regional Variation in Employment, Wages and Production Activity in the UK', Royal Economic Society Conference, Warwick University, April 2003.
- Simpson, H., 'The 0% rate of corporation tax', IFS Green Budget conference, 29 January 2003.
- Simpson, H., Devereux, M. P. and Griffith R., 'Regional Selective Assistance, agglomeration and firm formation', Comparative Analysis of Enterprise Data conference, London, September 2003.

- Wakefield, M., 'Measures affecting households', IFS Budget briefing, 10 April 2003.
- Windmeijer, F., 'Pharmaceutical promotion and GP prescription behaviour', iHEA conference, San Francisco, June 2003.
- Windmeijer, F., 'The impact of patient, hospital and ward characteristics on surgical outcomes over a 10-year period', iHEA conference, San Francisco, June 2003.
- Windmeijer, F., 'Bootstrapping for GMM: a comparison of alternative inference procedures', ESEM, Stockholm, August 2003.
- Windmeijer, F., 'Health care econometrics with patient level data', invited pre-conference educational session, Third European Conference on the Economics of Cancer, Brussels, September 2003.

### IFS conferences

IFS Green Budget 2003	29.1.03
Pensioner poverty briefing	13.3.03
Processing tax proposals and legislation	20.3.03
Econometric Study Group seminar	21.3.03
Building a competitive tax system: IFS 11th residential conference	4–5.4.03
Budget briefing	10.4.03
Quantile regression methods and applications	11.4.03
Understanding consumers' preferences	27.5.03
Assessment of the higher education funding proposals	25.6.03
EMU or ostrich: fiscal issues faced by countries contemplating membership in the European Economic and Monetary Union: IFS annual lecture (Willem Buiter)	30.6.03
The economics of ageing: third workshop of the RTN network of ageing	2–4.10.03
Inverse problems in econometrics	18.11.03
Pre-Budget Report briefing	11.12.03
Endogeneity, instruments and identification in econometrics, 14th EC <sup>2</sup> (European Conferences of the Econometric Community) conference	12–13.12.03

## 7. Media coverage: newspapers

### National dailies

Financial Times	09.01.03, 11.01.03, 22.01.03, 24.01.03, 30.01.03, 31.01.03, 01.02.03, 08.02.03, 12.02.03, 17.02.03, 17.02.03, 21.02.03, 14.03.03, 21.03.03, 21.03.03, 25.03.03, 03.04.03, 07.04.03, 09.04.03, 10.04.03, 10.04.03, 10.04.03, 11.04.03, 16.05.03, 24.05.03, 05.06.03, 05.06.03, 11.06.03, 12.06.03, 13.06.03, 20.06.03, 21.06.03, 21.06.03, 26.06.03, 10.07.03, 14.07.03, 23.07.03, 24.07.03, 24.07.03, 29.07.03, 02.08.03, 19.09.03, 19.09.03, 06.10.03, 07.10.03, 14.10.03, 15.10.03, 25.10.03, 25.10.03, 08.11.03, 08.11.03, 10.11.03, 22.11.03, 27.11.03, 01.12.03, 09.12.03, 10.12.03, 11.12.03, 12.12.03, 17.12.03, 19.12.03
The Daily Mail	30.01.03, 30.01.03, 21.02.03, 21.02.03, 11.04.03, 14.07.03, 25.07.03, 11.08.03, 21.08.03, 10.09.03, 20.10.03, 27.11.03, 01.12.03, 05.12.03, 05.12.03, 12.12.03, 12.12.03, 16.12.03
The Daily Telegraph	30.01.03, 01.02.03, 03.02.03, 03.02.03, 25.02.03, 05.03.03, 11.03.03, 03.04.03, 11.04.03, 14.04.03, 01.10.03, 17.12.03, 18.12.03, 19.12.03
The Guardian	30.01.03, 30.01.03, 30.01.03, 03.02.03, 21.02.03, 24.02.03, 03.03.03, 14.03.03, 14.03.03, 14.03.03, 20.03.03, 20.03.03,

	26.03.03, 10.04.03, 10.04.03, 11.04.03, 15.04.03, 17.04.03, 24.04.03, 30.04.03, 03.05.03, 21.05.03, 10.06.03, 11.06.03, 20.06.03, 23.06.03, 24.06.03, 25.06.03, 26.06.03, 02.07.03, 11.07.03, 19.07.03, 22.07.03, 25.07.03, 31.07.03, 06.08.03, 21.08.03, 29.09.03, 01.10.03, 07.10.03, 16.10.03, 21.10.03, 21.10.03, 21.11.03, 24.11.03, 26.11.03, 05.12.03, 06.12.03, 10.12.03, 11.12.03, 11.12.03, 11.12.03, 12.12.03, 12.12.03, 15.12.03, 18.12.03, 18.12.03, 19.12.03
The Independent	14.03.03, 21.03.03, 05.04.03, 07.04.03, 10.04.03, 10.04.03, 11.04.03, 24.04.03, 25.04.03, 01.05.03, 09.05.03, 22.05.03, 14.06.03, 21.06.03, 21.06.03, 10.07.03, 19.07.03, 31.07.03, 01.10.03, 06.10.03, 14.10.03, 01.11.03, 05.12.03, 11.12.03, 12.12.03, 19.12.03
The Times	29.01.03, 01.02.03, 03.04.03, 10.04.03, 11.04.03, 11.04.03, 11.04.03, 12.04.03, 10.06.03, 21.06.03, 26.06.03, 27.06.03, 01.07.03, 01.07.03, 11.07.03, 08.09.03, 07.10.03, 21.10.03, 05.12.03, 05.12.03, 11.12.03, 12.12.03, 12.12.03, 13.12.03
Other national daily	27.01.03, 30.01.03, 30.01.03, 28.02.03, 14.03.03, 07.04.03, 12.04.03, 26.06.03, 21.08.03, 06.10.03, 15.10.03, 20.10.03, 01.12.03, 01.12.03, 01.12.03, 02.12.03, 03.12.03, 05.12.03, 05.12.03, 05.12.03, 13.12.03, 19.12.03
<b>National Sundays</b>	
Independent on Sunday	09.03.03, 16.03.03, 19.10.03, 07.12.03
Observer	12.01.03, 02.02.03, 02.02.03, 16.02.03, 16.02.03, 23.03.03, 13.04.03, 03.08.03, 30.11.03, 14.12.03, 21.12.03
Sunday Telegraph	09.02.03, 10.08.03, 10.08.03, 02.11.03, 14.12.03
Sunday Times	26.01.03, 02.02.03, 02.03.03, 09.03.03, 30.03.03, 13.04.03, 13.04.03, 18.05.03, 22.06.03, 05.10.03, 19.10.03, 09.11.03, 30.11.03, 14.12.03, 14.12.03
Other national Sunday	02.02.03, 16.02.03, 06.04.03, 20.04.03, 10.08.03, 12.10.03, 26.10.03, 07.12.03, 07.12.03
<b>Regional newspapers</b>	
Evening Standard	29.01.03, 15.05.03, 25.06.03, 04.12.03, 12.12.03
Other regional daily	01.01.03, 30.01.03, 30.01.03, 30.01.03, 30.01.03, 30.01.03, 30.01.03, 06.02.03, 06.02.03, 07.02.03, 07.02.03, 14.02.03, 14.02.03, 14.02.03, 14.02.03, 18.02.03, 19.02.03, 19.02.03, 20.02.03, 20.02.03, 21.02.03, 26.02.03, 05.03.03, 13.03.03, 14.03.03, 14.03.03, 27.03.03, 07.04.03, 08.04.03, 11.04.03, 11.04.03, 12.04.03, 26.05.03, 11.06.03, 11.06.03, 12.06.03, 12.06.03, 12.06.03, 12.06.03, 12.06.03, 13.06.03, 13.06.03, 14.06.03, 26.06.03, 26.06.03, 26.06.03, 26.06.03, 26.06.03, 26.06.03, 26.06.03, 26.06.03, 01.07.03, 01.08.03, 11.08.03, 11.08.03, 22.08.03, 23.08.03, 27.08.03, 06.10.03, 06.10.03, 06.10.03, 06.10.03, 06.10.03, 07.10.03, 11.10.03, 16.10.03, 19.10.03, 25.10.03, 28.11.03, 01.12.03, 01.12.03, 01.12.03, 01.12.03, 01.12.03, 01.12.03, 01.12.03, 01.12.03, 01.12.03, 05.12.03, 05.12.03, 05.12.03, 05.12.03, 06.12.03, 06.12.03, 06.12.03, 09.12.03, 09.12.03, 10.12.03,

	10.12.03, 12.12.03,12.12.03,12.12.03, 12.12.03, 12.12.03, 13.12.03, 17.12.03, 17.12.03, 17.12.03, 17.12.03,17.12.03, 17.12.03, 17.12.03, 17.12.03, 18.12.03, 18.12.03, 18.12.03, 22.12.03
Regional Sunday	31.01.03, 02.02.03, 02.02.03, 13.04.03, 29.06.03, 07.12.03, 07.12.03, 14.12.03

### Magazines

Economist	01.02.03, 29.03.03, 05.04.03, 27.09.03, 11.10.03, 15.11.03, 06.12.03
Other magazine / trade journal	11.01.03, 17.01.03, 17.01.03, 29.01.03, 30.01.03, 31.01.03, 31.01.03, 31.01.03, 02.02.03, 02.02.03, 05.02.03, 06.02.03, 06.02.03, 07.02.03, 07.02.03, 08.02.03, 15.02.03, 21.02.03, 28.02.03, 03.03.03, 03.03.03, 06.03.03, 07.03.03, 07.03.03, 13.03.03, 20.03.03, 20.03.03, 21.03.03, 21.03.03, 21.03.03, 21.03.03, 24.03.03, 27.03.03, 28.03.03, 28.03.03, 31.03.03, 31.03.03, 31.03.03, 31.03.03, 01.04.03, 01.04.03, 03.04.03, 04.04.03, 10.04.03, 11.04.03, 11.04.03, 14.04.03, 18.04.03, 19.04.03, 01.05.03, 16.05.03, 01.06.03, 01.06.03, 05.06.03, 06.06.03, 06.06.03, 13.06.03, 13.06.03, 27.06.03, 28.06.03, 01.07.03, 01.07.03, 04.07.03, 04.07.03, 17.07.03, 01.08.03, 01.08.03, 29.08.03, 12.09.03, 03.10.03, 09.10.03, 09.10.03, 19.10.03, 23.10.03, 23.10.03, 24.10.03, 30.10.03, 07.11.03, 10.11.03, 24.11.03, 30.11.03, 01.12.03, 05.12.03, 05.12.03, 05.12.03, 05.12.03, 11.12.03, 11.12.03, 12.12.03, 18.12.03, 31.12.03, 31.12.03, 31.12.03, 31.12.03

### Authored articles

- Chote, R., 'Untying the Gordian knot', *Public Finance Magazine*, 31 January 2003.
- Chote, R., 'Brown cannot escape higher taxes', *Financial Times*, 5 March 2003.
- Chote, R., 'When great minds should not think alike', *Financial Times*, 29 July 2003.
- Chote, R., 'Four questions Brown has to answer', *Sunday Telegraph*, 10 August 2003.
- Chote, R., 'Gordon, Actually: an epic in three parts coming soon to a screen near you', *Independent on Sunday*, 7 December 2003.
- Chote, R. and Emmerson, C., 'Wringing the changes', *Public Finance Magazine*, 6 June 2003.
- Chote, R. and Emmerson, C., 'Conservative proposals for the basic state pension', *BBC Online* (<http://news.bbc.co.uk/1/hi/business/3167704.stm>), 6 October 2003.
- Chote, R., Emmerson, C. and Frayne, C., 'Brown's defiant optimism may pen him in on future Budgets', *Financial Times*, 10 April 2003.
- Chote, R. and Wakefield, M., 'You might be richer than you think', *Guardian*, 29 September 2003.
- Dearden, L. and Goodman, A., 'A battle being fought for the principle rather than the sums', *Evening Standard*, 4 December 2003.
- Emmerson, C., 'Where has all the investment gone?', *Public Finance Magazine*, 7 March 2003.
- Emmerson, C., 'More bang for the taxpayers' buck?' *Daily Mail*, 14 July 2003.
- Emmerson, C. and Frayne, C., 'Brown hopes for the best', *Public Finance Magazine*, 18 April 2003.
- Emmerson, C. and Frayne, C., 'Spending wisely?', *Government Opportunities Magazine*, 2 June 2003.
- Emmerson, C. and Love, S., 'Pre-Budget wish-list: the Institute for Fiscal Studies', *news.ft.com website*, 5 December 2003.

Emmerson, C. and Wakefield, M., 'Stability is needed as well as simplicity', *Investment Week*, 10 November 2003.

Frayne, C., 'IFS: Gordon Brown's Budget gamble', *Financial Times*, 2 April 2003.

Frayne, C., 'Message is the medium-term', *House Magazine*, 7 April 2003.

Frayne, C. and Love, S., 'Fiscal rules at breaking point', *Public Finance Magazine*, 5 December 2003.

Miles, D., 'A better balance for the benefit system', *Financial Times*, 9 April 2003.

## 8. Media coverage: radio and TV

### National television

BBC1	Breakfast News	Chote, R.	25.03.03, 09.04.03, 10.12.03
	One O'clock News	Emmerson, C. Goodman, A.	10.09.03 20.06.03
	Six O'clock News	Chote, R. Emmerson, C.	04.03.03, 10.12.03 24.09.03
	Ten O'clock News	Chote, R.	31.01.03, 04.03.03, 08.10.03
	The Politics Show	Emmerson, C.	30.11.03
BBC2	Newsnight	Chote, R.	03.02.03, 09.04.03, 13.05.03, 08.08.03, 08.10.03, 10.12.03
		Goodman, A.	20.06.03
BBC News 24	News	Chote, R.	05.10.03, 10.12.03
		Emmerson, C.	10.09.03
		Goodman, A.	26.06.03
Bloomberg TV	News	Chote, R.	29.01.03, 10.12.03
	Channel 4	News	Brewer, M.
			Chote, R.
Sky TV	News	Goodman, A.	01.12.03

### National radio

BBC Radio 4	Analysis	Emmerson, C.	17.03.03
	Down with the Treasury	Chote, R.	13.08.03
	Moneybox	Chote, R.	11.10.03, 13.12.03
	More or Less	Emmerson, C.	25.03.03
	Today	Adam, S.	23.09.03
		Chote, R.	03.04.03, 17.12.03
	Westminster Hour	Chote, R.	26.03.03
	World at One	Emmerson, C.	23.09.03
		Goodman, A.	02.12.03
	World this Weekend	Chote, R.	30.03.03
	World Tonight	Chote, R.	04.03.03, 08.04.03
		Frayne, C.	15.01.03
	You and Yours	Emmerson, C.	10.03.03

BBC Radio 5	Breakfast	Goodman, A.	13.03.03
	Drive Time	Chote, R.	03.04.03
BBC World Service	News	Emmerson, C.	08.09.03, 23.09.03
		Chote, R.	27.03.03

**Local radio**

BBC Radio Scotland	News	Emmerson, C.	31.07.03, 11.08.03, 14.09.03, 14.10.03
BBC Radio Oxfordshire	News	Emmerson, C.	06.10.03
BBC various local radio	News	Emmerson, C.	05.12.03

**Webcasting**

Cantos	Online clip	Frayne, C.	03.04.03
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**9. International collaborative research projects**

Attanasio, O. and Low, H., Explaining Changes in Female Labour Supply in a Life-Cycle Model, with V. Sanchez-Marcos (University of Cantabria).

Banks, J., NBER Disability group.

Banks, J., NBER International Comparisons of Social Security group.

Banks, J. and Emmerson, C., RTN project on the Economics of Ageing, Naples, 8–10 May 2003, as cited above.

Banks, J. and Emmerson, C., RTN project on the Economics of Ageing, IFS, London, 2–4 October 2003, as cited above.

Blundell, R. and Emmerson, C., NBER conference, Nafplion, Greece, 18–20 September 2003, as cited above.

Bond, S., collaboration with Jason Cummins (Federal Reserve Board) on analysts' earnings forecasts and company investment.

Bond, S., collaboration with Fabio Schiantarelli (Boston College) on capital accumulation and economic growth.

Crawford, I., Welfare Rankings from Multivariate Data: A Nonparametric Approach, with Gordon Anderson (Toronto).

Crossley, T. and Low, H., When Might Unemployment Insurance Matter? Credit Constraints, the Life-Cycle and the Cost of Saving.

Griffith, R., CEPR-run EU project on Product Market Structures and Innovation.

Griffith, R., collaboration with D. Acemoglu (MIT).

Griffith, R., collaboration with P. Howitt (Brown).

Griffith, R., collaboration with S. Prantl (WZ Berlin) on Product Market Regulations and Productivity.

Griffith, R., EU project on Employment and Innovation (ENSAE, Mannheim, Carlos III in Madrid).

Low, H., Meghir, C. and Pistaferri, L., Wage Risk and Employment Risk over the Life-Cycle.

Myck, M., Dynamics of Aggregate Wages in Poland, 1994–2003, with J. Mycielski and L. Morawski (Warsaw University).

Redding, S., The Geography of Urban Development: Evidence from German Division and Reunification, joint with D. Sturm (University of Munich).

Redding, S., The Uneven Effects of Liberalization: Evidence from India, joint with P. Aghion (Harvard), R. Burgess (London School of Economics) and F. Zilibotti (Institute for International Economic Studies).

Redding, S., Product Choice and Product Switching, joint with A. Bernard (Tuck School of Business, Dartmouth) and P. Schott (Yale School of Management).

- Redding, S. and Simpson, H., Factor Price Equalization in the UK? joint with A. Bernard (Tuck School of Business, Dartmouth) and P. Schott (Yale School of Management).
- Redding, S. and Simpson, H., Relative Wages and Industry Location, joint with A. Bernard (Tuck School of Business, Dartmouth) and P. Schott (Yale School of Management).
- Redding, S. and Simpson, H., Regional Wage Inequality in the UK: Evidence and Explanations, with A. Bernard (Tuck School of Business, Dartmouth) and P. Schott (Yale School of Management).