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At the National Institute we aim to produce research to the highest possible standards, and we also aim that much of what we do should be policy-relevant. The assessment of the euro saw the Government conducting one of the most thorough studies of a macroeconomic policy question for many years. Of the eighteen documents which underpinned the assessment, fourteen referred to National Institute research. Heavy use was also made of our macroeconomic model in carrying out the assessment, because it was felt that it provided the best means of identifying and quantifying many of the key issues raised by Euro Area membership.

As producers of a macroeconomic model and macroeconomic forecasts, an important aim has to be to communicate the uncertainty surrounding the latter. Despite what the press would have us believe, it is not the case that some forecasts are right and others are wrong. Forecasts are best presented in probabilistic terms so as to show the range of uncertainty surrounding them. Producing forecasts of this type is by no means straightforward, but I am glad that we are now able to do this for the government current balance in addition to the information we have provided on output growth and inflation for a number of years. What emerges is not very surprising; the difference between gloomy and optimistic forecasts of public borrowing is small compared to the degree of uncertainty in those forecasts. And there is no reason to believe that other people's forecasts have margins of uncertainty surrounding them very different from the uncertainty associated with ours. The results suggest that policymakers cannot rationally be confident that any particular fiscal rules will be met in the long run; the key question from a policy point of view is what will be done if they are not.

We have also addressed the question of uncertainty surrounding estimates of output gaps. Work elsewhere has shown that a substantial degree of hindsight is needed to measure the output gap; the problem is that it is not possible to distinguish temporary shocks from permanent or near-permanent shocks until a substantial amount of time has elapsed from the shocks concerned. We have devised means of estimating probability density functions for output gap estimates; these suggest that, as with forecasts of public borrowing, the confidence limits surrounding any particular estimates are very large.

In recent years I have reported the growing importance of our work on productivity and the trend has continued. The group working on productivity is in the final stage of negotiations for a substantial grant from the 6th Framework Programme of the European Commission. The research financed by this involves the study of factors contributing to productivity growth industry by industry in the European Union, with particular attention paid to the role of information and communication technology. The group is also addressing the key problem of measuring productivity in the public sector; this involves finding good ways of assessing the outcomes of public sector activity instead of looking simply at, say, the number of children taught or the number of patients treated.

The National Institute is also closely involved in the development of a new Workplace Employment Relations Survey under a project funded by the Department of Trade and Industry. These surveys have been carried out approximately every 4–5 years, with the next one due in 2006. We were heavily involved in the analysis of the last survey and it is gratifying that our expertise in the area is again proving useful.

An organisation like the National Institute needs to monitor its financial circumstances closely. The surplus recorded in the accounts for 2002/3 was larger than we had expected because exterior maintenance work for which we had expected to make provision was in fact charged to the current year. The financial outturn has also been adversely affected by financial problems at the firm distributing the maths teaching materials we have published jointly with the London Borough of Barking and Dagenham following on research we did with them into methods of maths teaching. An administration order there is likely to result in some manageable loss to the Institute. Nevertheless, we remain in good shape.

However, we also need to keep a careful eye on progress with raising the research grants and contracts needed to pay for our research in the new financial year (2003/4). We have made much better progress with this than in recent years; the European Commission Project mentioned above and other substantial grants are likely to more than compensate for the fact that ESRC support for our (and all other) macroeconomic modelling work, and all research specifically on macroeconomics, comes to an end in June. In the past the predecessors of this programme have been the mainstay of the Institute's research funding. I congratulate my colleagues in managing the transition to other sources of research funding.

Nevertheless, most of our funding is tied to specific projects. It follows that we value greatly the support of our Corporate Members and other financial supporters; this underpins production of our quarterly forecast of the UK economy. The latter is probably the most visible public contribution we make to the policy debate, since it provides a framework for discussion of a range of important policy issues which is as important as the forecast itself. Corporate support also gives us a small amount of flexibility in setting up new areas of work ahead of funding for them and it is also greatly appreciated for this reason.

'Gordon Brown's decision to keep Britain out of the euro will cost the economy £35bn a year, the National Institute of Economic and Social Research said yesterday. The institute, one of the country's leading think-tanks, criticised the use of the housing market as a barrier to entry'

The Independent, 12 June, 2003

A consistent message during the year was the looming fiscal deficit being faced by the Government. Each quarterly issue of the *National Institute Economic Review* predicted a gap in the public finances. Researchers warned that there was a strong chance that this problem could only be solved by an increase in taxes.

'Gordon Brown confronts having to raise taxes by as much as £22 billion around the time of the next general election if he is to abide by his own fiscal rules . . . according to the influential National Institute of Economic and Social Research.'

The Times, 31 October, 2003

I would also like to take the opportunity to thank not only our staff but also the researchers with whom we have collaborated during the year. These include the people who have taken the time to speak at our various conferences and seminars, and our research colleagues elsewhere in the UK and in the rest of Europe. Such collaboration has been most valuable to the Institute and its continuing prosperity.

New staff (left to right): Lucy Stokes, Robert Metz, Grant Naber and Ana Rincon-Aznar.

JOHN FLEMMING 1941–2003

This time last year, I took over as Chairman of the Council of Management from John Flemming, who had served as Chairman since 1996, having been a Governor of the National Institute since 1990.

As you will all know, John died in August of this year. As you will also all know, he was an exceptional person, both in his public and in his private life.

John was born in February 1941, a fact which I have long known because one day John and Jean were round to dinner at our house near Oxford and he happened to notice that, by chance, I possessed a bound volume of the Times newspaper for the first three months of 1941. He was then able to show us the announcement of his birth on the 6th February in this august paper.

John had the sort of public career which may realistically be described as glittering, Official Fellow of Nuffield, Chief Economist and then Executive Director at the Bank of England, founding Chief Economist at the European Bank of Reconstruction and Development and finally Warden of Wadham. He also found time to edit the *Economic Journal*, serve on the Royal Commission on Environmental Pollution and many, many other things besides, not least being our Chairman.

He was a brilliant economist and much more. His thinking was both wide and deep, full of ideas and backed up by a wide range of knowledge. Confront him with any problem; economic, social, political, personal, and you invariably got a measured, incisive, thoughtful and, ultimately, useful response. This is why people were always confronting him with problems and why he was so important to this Institute, particularly during the time of his Chairmanship.

John Flemming, former Chairman of the National Institute

But the greatest thing about John was the fact that if you got on a train and spotted him, you could sit down opposite for a long journey, safe in the knowledge that you were in for a really enjoyable time. And, poor chap, he always looked pleased to see you. He had genuine charm. This time last year, as those who were at the party will recall, John was not that well. But he went round the room making everyone feel better after they had spoken to him. That's how we should remember him, as someone who made our lives better.

Stephen Nickell
NIESR Chairman

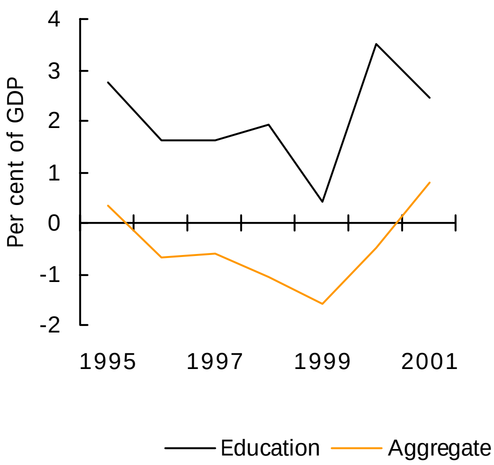
PRODUCTIVITY GROWTH IN THE EDUCATION SECTOR

This research arose from an Evidence Based Policy Fund grant to consider the performance of UK public service provision in an international context. The application to comparing the UK and US education sectors is a first attempt to use outcomes rather than outputs to measure productivity. Arguments related to the lack of prices and information asymmetries suggest final outcomes are likely to yield a more comprehensive picture of performance than relying solely on (cost weighted) volume output indicators.

In the education application the outcome measure is taken to be the impact of education on lifetime earnings of pupils or students. This in turn is influenced both by additional earnings arising from extra time spent in education and the impact of education on the probability of being economically active. The first step is to estimate the impact of education on earnings controlling for extraneous influences, employing a standard Mincerian human capital earning function. The research also takes account of selectivity bias, due to the fact that we only observe wages for those individuals who are in work. Hence the estimates employ a 'Heckman correction/selection' methodology in estimating wages. Finally a multinomial-logistic model of the probability of an individual being in one of three labour market states (employed, unemployed, inactive) is also estimated. These elements are combined to yield estimates of discounted future earnings from each year of education. The latter are then used as weights on volume measures (number of pupils/students) to arrive at an outcome based index of the services provided by the education sector.

This method is applied to both the UK and US education sectors for the period 1994–2001. In this first attempt inputs are measured by labour employed, where the growth in types of labour (school teachers, university lecturers, teaching assistants etc.) are weighted by their shares in the education sector wage bill. The resulting labour productivity measures suggest growth in the UK education sector of 0.86 per cent per annum, somewhat below the 1.44 per cent per annum achieved in the economy as a whole. However the US results show declining labour productivity throughout this period. The figure below plots the annual per cent difference between UK and US labour productivity growth rates in the education sector and compares this with the difference in productivity growth rates in the aggregate economy. In education the UK outperforms the US in all years (the differences are everywhere positive) with very high differences in the final two years. In contrast labour productivity growth in the total economy was mostly greater in the US than in the UK during these years. Hence, put in this international context, productivity growth in the UK education sector looks impressive.

Annual differences in labour productivity growth rates (UK–US): education and the aggregate economy, 1995–2001



THIS RESEARCH WAS CARRIED OUT BY MARY O'MAHONY AND PHILIP STEVENS AND FUNDED BY THE EVIDENCE BASED POLICY FUND.
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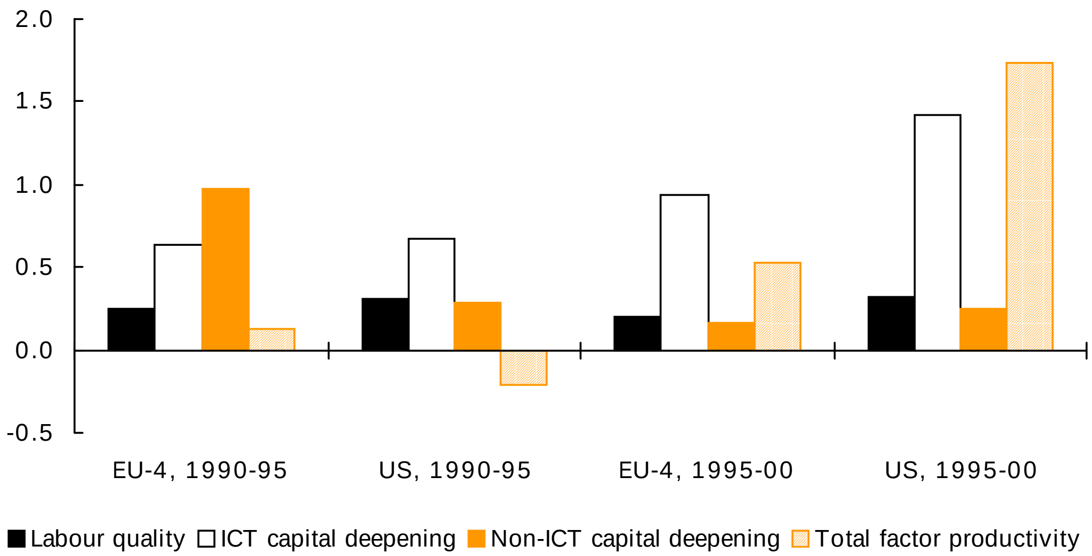
A recently published book compared labour productivity growth in the US with the total EU in 56 industries. Additionally in the US and four EU countries (France, Germany, The Netherlands and the UK), labour productivity growth was divided into contributions from capital, labour quality and total factor productivity (TFP). Industries were grouped according to their production or use of Information and Communications Technology (ICT). ICT producing sectors in both regions show accelerating growth from the mid-1990s, with the US leading the EU. The US aggregate advantage stems mainly from accelerating growth in the ICT intensive using sectors, primarily services, not matched in the EU. Both regions show declining growth in more traditional industries that do not make intensive use of ICT.

MARY O'MAHONY AND BART VAN ARK, *EU PRODUCTIVITY AND COMPETITIVENESS: AN INDUSTRY PERSPECTIVE. CAN EUROPE RESUME THE CATCHING-UP PROCESS?* PUBLISHED BY THE EUROPEAN COMMISSION, ENTERPRISE PUBLICATIONS, DECEMBER 2003. AVAILABLE FROM THE COMMISSION'S OFFICE IN LONDON OR IN BRUSSELS OR IN ANY OUTLETS THAT SELL COMMISSION PUBLICATIONS. ENQUIRIES TO M.OMAHONY@NIESR.AC.UK.

Growth in ICT capital was high in both US and the EU-4 but in the latter there has been decelerating growth in non-ICT capital deepening in the EU-4 in most industries, explaining much of the labour productivity slowdown. Industries generally show growth in labour quality but more so in the US in the 1980s and the EU-4 in the 1990s. Accelerating TFP growth occurred in both ICT producing and using sectors in both the US and the EU-4 but at lower rates in the latter (see figure below).

Additional issues covered in the book include comparisons of unit labour costs in manufacturing, the impact of the business cycle on productivity measures and an analysis of US and EU productivity at the company level.

Labour productivity contributions: ICT using industries, EU-4 and US, 1990–2000

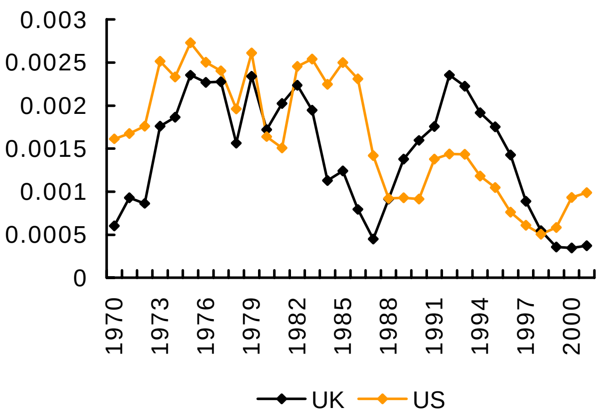


THE VOLATILITY OF THE OUTPUT GAP IN THE G7

Output volatility has a deleterious effect on welfare and higher output volatility is widely believed to hinder growth in the level of output. Understanding the factors affecting the volatility of output is central to improving the stability oriented macro policy frameworks adopted by the UK, the European Commission and the EMU countries. It is widely reported that output volatility has been declining in the past few decades, and a number of explanations have been offered. The decline in output volatility in the US has been more marked than elsewhere, and has been variously ascribed to changes in the policy regime reflected in inflation volatility, improved stockholding and increased international integration. Amongst these separate candidates, changes in policy regime have taken precedence in the published studies over improved stockholding as determinants of output volatility, whilst increased international integration has largely been disregarded as an explanation.

Ray Barrell and Sylvia Gottschalk have investigated output volatility in the G7 in a panel context treating policy, stocks and openness as competing explanations rather than as alternatives to be considered one at a time. They first show that inflation volatility on its own cannot account for the reduction in volatility, and that openness to trade is a clear candidate for driving increased stability. Inventories appear to have little explanatory power. Although the policy regime as indicated by inflation volatility does appear to play a role, it is potentially endogenous, and using appropriate econometric techniques reduces its contribution. The authors found that changes in output volatility can be explained by openness to trade and international financial integration as well as by increasing risk sharing that comes from increased financial wealth.

Output volatility



THIS RESEARCH WAS UNDERTAKEN BY RAY BARRELL AND SYLVIA GOTTSCHALK AND FUNDED BY THE ECONOMIC AND SOCIAL RESEARCH COUNCIL.
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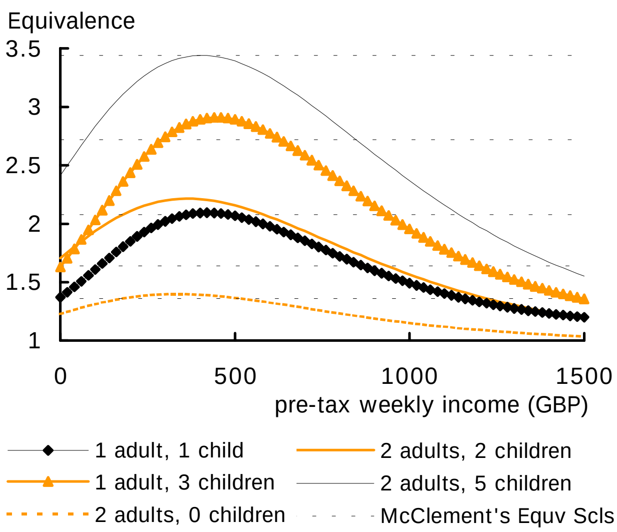
The commonly cited results on the determinants of output volatility have stressed the role of macro policy, which is important, but other policies directed at making markets function more effectively have been at work helping the economy become more stable. The forces driven by policies to liberate capital movements between countries and liberalise capital markets within countries have been major factors behind change. The results reported by Barrell and Gottschalk are consistent with the theoretical literature that shows that trade and financial liberalisation allow intertemporal risk-sharing, that more sophisticated financial markets help individuals smooth their consumption decisions over time, and that better monetary policies help to reduce output volatility.

TAXATION-BASED EQUIVALENCE SCALES IN THE UK

When comparing the welfare derived from income by demographically heterogeneous households, it is necessary to take into consideration their respective needs. The most common method by which applied studies in economics currently relate the needs of different households is via equivalence scales. Despite a considerable research effort, however, almost every aspect of equivalence scale specification remains controversial. We have attempted to address this issue by focussing upon the relativities that are implicit in tax and benefits policy. Our research in this area suggests that the UK transfer system embodies a complex set of value judgements that are not easily captured, particularly when compared with the Australian transfer system.

The development of equivalence scales that embody the value judgements implicit in tax and benefits policy presents exciting research possibilities. Furthermore, such scales could play an important role in the tax design process itself. In view of the fact that the redistributive systems are commonly comprised of numerous tax and benefit schemes, it is often difficult to ensure that the overall system achieves the desired redistribution. Information about implicit scales can be useful in suggesting that certain features of the tax system need adjusting. The analysis that we have undertaken can consequently be divided into 3 broad topics:

Alternative equivalence scale relativities for the UK



- Development of a theoretical framework for interpreting the relativities implicit in transfer policy in terms of the equivalence scale methodology – the framework is shown to be sufficiently flexible to describe *any* transfer system.
- Development of three estimation methods with emphasis placed upon non-parametric approaches.
- Practical application – estimates have been calculated for the Australian and UK transfer systems.

Samples of the estimates obtained for the UK transfer system (and the associated McClement's scales) are displayed in the figure below, in which the equivalence scales are specified with reference to single adults without dependant children (for whom the equivalence scale takes a value of 1). The estimates suggest that the UK transfer system makes a larger adjustment for household need as the number of household members increases, as we would expect. Furthermore, the income dependence of the scales suggests that the tax system makes a larger proportional adjustment for household need as incomes rise up to the population average, and falls away thereafter – particularly for households with children. This relationship with income is observed because single adults without dependant children are subject to a higher effective marginal tax rate at low incomes than other households. It is also consistent with the value judgement that, at low incomes, there are social benefits associated with providing additional support to households with children, but at higher incomes households should be expected essentially to cater for their own needs.

THIS RESEARCH WAS CARRIED OUT BY JUSTIN VAN DE VEN.
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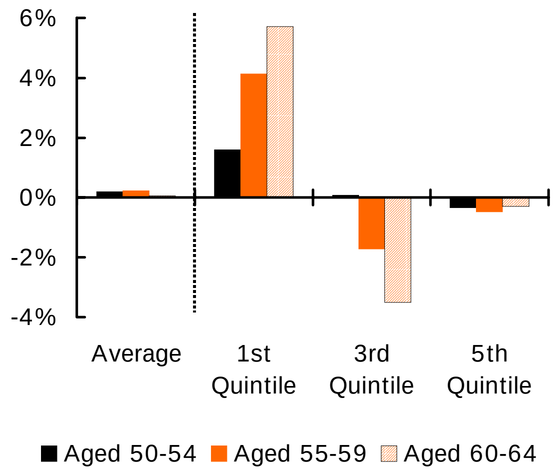
MEANS-TESTING OF PENSIONS: REDISTRIBUTION RATHER THAN EFFICIENCY

The growth in means-testing of pension benefits has been heavily criticised as creating a dependence on welfare. Yet it does lead to a more equal society. This work examined the trade-off. We showed that, even though targeting pension income at the less well off does generate incentives not to save and not to work for those on low incomes, it does not necessarily lower aggregate saving and work participation levels, as the better off need to work and save more.

The Government's motive for increasing its reliance on means-testing is obvious; it promises a way of ensuring that everyone has an adequate income at the same time as controlling costs by reducing eligibility to benefits. Future costs are set to increase as individuals live longer, therefore means-testing is likely to remain an integral part of the pension policy for a long time. However, this dependence on means-testing introduces incentive traps into the tax and benefit system which could both increase reliance on benefits and exacerbate the problems of early retirement. If the returns to saving for retirement are partly offset by a reduction in future pension benefits, there is an economic incentive either to make only limited provision for retirement or to retire early, live off any savings until the state retirement age, and pension benefits thereafter.

Anticipated long-run changes to labour participation rates by lifetime income quintile group on the introduction of the pension credit



THIS WORK WAS CARRIED OUT BY JAMES SEFTON AND FUNDED BY THE ECONOMIC AND SOCIAL RESEARCH COUNCIL. ENQUIRIES TO J.SEFTON@NIESR.AC.UK

Means-testing does, though, reduce overall aggregate costs of providing an adequate income for all in retirement, and does so progressively. With means-testing of pension benefits, households on low incomes do not need to reduce their already low disposable income during their working lives to save for their retirement. Removing the means test on pension benefits will either imply that benefits become less generous, or it will imply that tax rates need to rise to provide the same level of benefits to all. Either way the disposable income of low-income working households is reduced. If it is desirable that the state should support to a greater or lesser extent those on low incomes, then means-testing of pension benefits is an effective way of redistributing income. The case is made even stronger if one accepts that low income households either do not have the same access to tax-efficient savings vehicles, or are in a weaker position to tie up their capital in tax-efficient pension saving products.

These are the principal economic arguments for and against means-testing of pension benefits which we aimed to examine in detail and to quantify the trade-off both between the desirable and undesirable consequences of means-testing and between redistribution and economic distortions. The quantification of the trade-off was done using a new model of household savings behaviour developed at the National Institute, with which we were able to compare the trade-off achieved, by the current policy of means-testing of pension benefits, to other possible policy alternatives. In particular, we discussed the recent recommendations of the National Association of Pension Funds in their report, *Pensions – Plain and Simple*, to raise the state retirement age to 70 and to increase the generosity of the universal Basic Pension to levels of the Pension Guarantee.

THE DETERMINANTS OF INTERNATIONAL MIGRATION INTO THE UK

Recent work at the National Institute has developed the first detailed analysis of the economic and demographic determinants of annual migrant inflows into the UK from a number of different locations. We focus on inward migration into the UK as recorded in the International Passenger Survey (IPS). The share of IPS migrants in the total annual inflow of migrants into the UK averaged 80.5 per cent over the period 1984–2000.

Our results can be summarised as follows.

- The step-up in the number of migrants entering the UK, in particular since the mid-1990s (see figure below), can be explained by the economic and demographic forces that ultimately drive migration.

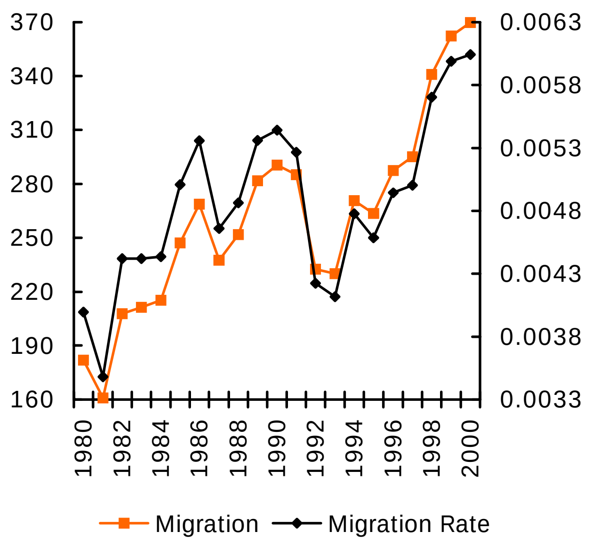
- A decomposition of the changes in the average annual level of inward migration between 1988–90 and 1998–2000 reveals that increasing or higher *per capita* incomes in the UK relative to both those in other potential host locations and those in the source location, population growth in the source locations and a rising migrant stock ('friends and family' effects) account for most of the step-up in the level of inflows. Other important factors are the level of bilateral trade between the UK and the source location and the proportion of the source population aged 15–29.

- All these factors suggest that the higher level of gross inflows should persist for some time. This provides support for the upward revision made in the 2002 Budget to the long-term trend rate of growth of the British economy by ¼ of a percentage point. A key component of this revision was the impact of an increase in the projected future growth of the working age population due to net migration.

- Variations over time in the relative ease of entry into the UK and these other EU economies, as proxied (in the absence of a formal quota system in the UK) by the past inflow of migrants as a proportion of the host population, do not seem to have had a statistically significant effect on the aggregate level of new inflows into the UK.

- Migration from different locations responds at very different speeds to a common change in the key long-run determinants of migration flows.

Gross IPS migrant inflows into the UK



THIS RESEARCH WAS CARRIED OUT BY JAMES MITCHELL (NIESR) AND NIGEL PAIN (CURRENTLY AT THE OECD) AND FUNDED BY THE HOME OFFICE. ENQUIRIES TO J.MITCHELL@NIESR.AC.UK.

Issues of labour supply are usually studied in a situation which focuses on the choice between paid work and leisure, although they may also investigate the time people put into unpaid work such as work in the home. The question of time use by students is considerably more interesting because they face a choice between paid work, study and leisure. In the spirit of the now common treatment of education as investing in human capital, time spent on study can be seen as an investment in the future, having a current cost but likely to lead to enhanced future income. This applies not just to the choice of whether to proceed to tertiary education but also to the number of hours devoted to study by students once they have chosen tertiary education.

A theoretical analysis of the problem leads to a number of conclusions, some of them expected and others surprising. First of all, it is clear that the introduction of fees (paid by the cohort graduating in 2001 but not in 2000) should lead to a reduction in study time. Secondly, if students are regarded as liquidity constrained, i.e. they are unable to borrow as much as they sensibly would, given rational expectations of future income, then an increase in the availability of credit or the provision of grants encourages study and thus raises future income. Less straightforwardly, loans are a greater stimulus to study than are grants. The reason for this is that loan repayments, if they are not income-contingent, amount to a lump-sum tax on former students once they start their working lives. This depresses post-graduate consumption, raising the worth to the individual of incremental consumption (at least with the conventional assumption of diminishing marginal utility of consumption). It follows that, for the student facing loan repayments, it becomes more worthwhile to give up some of the factors which contribute to welfare while a student (e.g. consumption financed by paid work or leisure).

Most surprisingly we find that study of a course likely to lead to a job with high prospective earnings is a disincentive to study. The reason for this is as follows. For a given amount of study, an incremental effort can be assumed to have the same proportionate effect on future earnings for both high and low prospective earners. This is a reasonable structure for a production function for human capital. The high earner derives a larger absolute amount of money from the effort than does the low earner. But if the marginal utility of consumption declines fast enough with the absolute level of consumption, then the extra welfare accruing for this extra income will actually be lower for the high earner than the low earner.

Data collected in four English universities in 2000 and 2001 are consistent with this model. We find that high prospective wages do indeed discourage study, while absence of debt facilitates it. We also note that students receiving family support tend to take more leisure and study less hard than students who do not. Although the effects of the introduction of student fees have the expected direction, reducing study and leisure in favour of paid work, the effects are not statistically significant.

Influences of key variables on student time use

	Study	Leisure	Paid work
Age	+ +	(+)	--
Science/Medicine	+ +	(+)	--
Languages/Humanities	(-)	(-)	+ +
Socio- Economic Group D/E	(+)	--	+ +
Family Support	--	(+)	(-)
No Debt	(+)	+ +	--
2001Dummy	(-)	(-)	(+)
Future Wage	--	(+)	(+)

Notes: + /- indicates sign. Brackets indicate insignificant at 5% level. + + /-- indicates significant at 5% level.

THIS WORK IS DERIVED FROM A STUDY SUPPORTED BY THE LEVERHULME TRUST AND CARRIED OUT BY PHILIP STEVENS AND MARTIN WEALE.
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Do the returns to general and job-specific skills vary across industries? If so, what explains this variation? As part of a project funded by the ESRC, researchers at the National Institute have investigated the returns to two types of human capital across UK industries in the 1990s. They find that the gap between the return to skills obtained through formal education and those obtained on the job is greatest in industries that make intensive use of ICT equipment.

This study obtains estimates of the returns to general and job-specific skills for seventeen industries from a standard earnings equation estimated on UK Labour Force Survey records from 1994 to 1999. Years of continuous schooling are used as a proxy measure of an individual's general (transferable) skills, while years of continuous employment with a current employer are used as a proxy measure of job-specific (non-transferable) skills.

The estimated percentage gain in earnings associated with one additional year of schooling and with one additional year of job-specific experience displays significant variation across industries. For example, the return to an additional year of schooling varies from 1.6 per cent in the hotels and catering industries to 7 per cent in the manufacture of chemicals and allied products industries (see table). In all the industries analysed the return to schooling is greater than the return to job-specific experience. On average, the wage premium attached to schooling is 4.4 percentage points above that attached to experience.

The study focuses on the role of the capital intensity of production and the share of the capital stock invested in information and communication technology (ICT) in explaining the inter-industry variation in the return to different types of human capital. Initial findings from this analysis suggest that the return to job-specific experience is greatest in those industries where production is relatively capital intensive. Controlling for the capital intensity of production, the study finds that new technologies raise the return to schooling, but devalue the return to job-specific experience, suggesting that new technologies are biased towards general skills, which may be useful in acquiring new skills, and biased against skills that are less transferable.

The mean return to schooling and job-specific experience by industry, 1994–1999

	Schooling	Job-specific experience
Agriculture and non-manufacturing production	6.3	0.9
Manufacture of chemical and allied products	7.0	1.5
Manufacture of basic metals	4.1	0.9
Manufacture of machinery	4.5	0.6
Manufacture of electrical and optical equipment	6.8	1.0
Manufacture of transport	5.4	0.7
Manufacture of food, drink and tobacco	5.8	1.2
Other manufacturing	5.3	1.1
Construction	4.0	0.5
Wholesale and retail	5.4	0.8
Hotels and catering	1.6	0.1
Transport	6.1	1.1
Communications	6.7	0.9
Financial intermediation	5.4	1.2
Business services	6.5	1.4
Personal services	4.7	0.8
Non-market services	5.6	1.2

THIS RESEARCH HAS BEEN FUNDED BY THE ECONOMIC AND SOCIAL RESEARCH COUNCIL. ENQUIRIES TO S.KIRBY@NIESR.AC.UK OR R.RILEY@NIESR.AC.UK

The impact of exchange rate uncertainty on investment has recently received increasing attention from researchers and policymakers. However, little evidence has so far been found on the role of uncertainty in determining the location of overall foreign direct investment, and on the impact of uncertainty on foreign direct investment in R&D. Furthermore, whilst the current practice is simply to consider the volatility of exchange rates, we extend this by also considering their covariance. Specifically, we examine the impact of the UK's possible entry into the European Monetary Union, where we exploit the fact that on entry the covariance of the euro and sterling will rise.

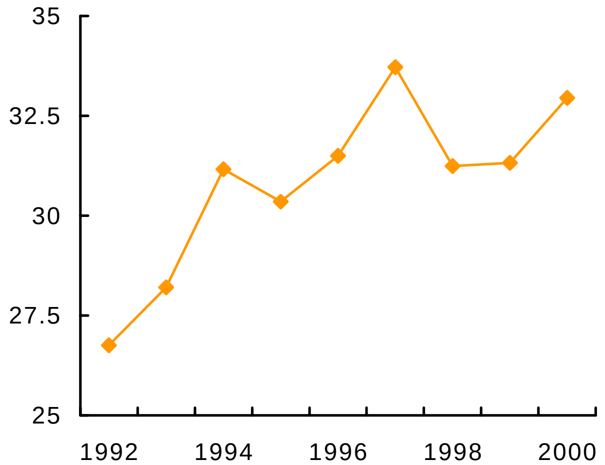
The theory suggests that while the UK is outside EMU there is an incentive for foreign firms to diversify their investments between both the UK and Europe so as to minimise their overall risk. Once the UK joins EMU then this incentive disappears and more of the investment will go to the area with the higher rate of return. In theory, joining EMU could lead to either higher or lower inflows of investment to the UK.

In one strand of our research we have empirically investigated the impact of exchange rate uncertainty on the location decisions of US firms in the European Union between 1980 and 2000. Their results show that manufacturing firms investing in Europe tend to be risk-averse and decrease their investments as exchange rate volatility rises. However, an increase in the correlation between the sterling–dollar exchange rate and the euro–dollar exchange rate tends to relocate US investment from the Euro Zone to the UK. This result indicates that joining the EMU would raise the inflows of investment into the UK.

In another strand of our research we have been estimating a panel of manufacturing industries in the UK and we find that an increase in the volatility of the euro–dollar exchange rate tends to relocate R&D investment from the Euro Area into the UK. A rise in the covariance of the euro and sterling, which would be a certain consequence of the UK joining EMU, will increase foreign R&D investment into the UK. Other factors identified to have significant effects on FDI in R&D are real long-term interest rates, output fluctuations, net capital expenditure and government funding.

These results do not contradict recent evidence that the UK is performing well in terms of levels of foreign investment relative to the rest of Europe. It rather suggests that joining EMU would reinforce this effect and lead to the UK performing even better.

Foreign investment in R&D as per cent of total R&D in UK manufacturing (excluding industries 23, refined petroleum products and nuclear fuels, and 37, recycling)



THIS RESEARCH WAS CARRIED OUT BY BETTINA BECKER, SYLVIA GOTTSCHALK AND STEPHEN HALL AND FUNDED BY THE ESRC. ENQUIRIES TO B.BECKER@NIESR.AC.UK OR S.GOTTSCHALK@NIESR.AC.UK

Until recently the UK has had little evidence on the impact of investments in Information and Communications Technologies (ICTs) at firm level and on the potential for the UK to catch up with the US in terms of reaping the productivity benefits of ICT investments.

This gap in the evidence base has now been filled by NIESR research which matched data from existing firm-level surveys in the UK to post-survey financial data and also made use of a new cross-country industry-level database for the UK, the US, France and Germany between 1979 and 2000.

The firm-level analysis identified a strong positive impact of ICT capital deepening on productivity at firm level in the UK since the mid-1990s. However, it also found that in many UK firms the take-up and use of ICTs had been restricted by ICT skill deficiencies. In addition, internal ICT skill gaps among existing employees – widely attributed to difficulties in keeping up to date with rapid changes in ICT skill requirements – had strong negative effects on average labour productivity at firm level.

The industry-level analysis highlighted some strong similarities between UK investment in ICTs and the use of complementary high-skilled labour in the late 1990s and US experience in the 1980s. However, the evidence on skill constraints suggests that there is nothing automatic about UK enterprises 'catching up' with US counterparts in the learning processes of how to make most effective use of ICTs (for example, through business reorganisation, workforce training and changes in product strategy).

The project findings suggest that UK education and training policy needs to focus strongly on skill gaps among adult employees, not just on new entrants to the workforce. In addition, government policies on competition, regulation and business support need to continue their focus on developing market environments and incentives for knowledge transfer which will encourage higher levels of innovation by UK enterprises.

Contributions to growth in labour productivity (output per worker-hour), UK and US, 1995–2000

	ICT producing industries	*ICT using industries*
United Kingdom		
Labour productivity growth (% p.a.)	12.54	2.92
Percentage point contributions of:		
Labour quality	0.50	0.38
ICT capital	2.28	1.27
Other capital	0.51	0.09
TFP	9.25	1.18
United States		
Labour productivity growth (% p.a.)	14.77	3.72
Percentage point contributions of:		
Labour quality	0.20	0.32
ICT capital	1.84	1.43
Other capital	1.06	0.25
TFP	11.67	1.73

THIS RESEARCH WAS CARRIED OUT BY GEOFF MASON, MARY O'MAHONY, JOHN FORTH, KATE ROBINSON AND MICHELA VECCHI. IT WAS SUPPORTED BY THE DEPARTMENT OF TRADE AND INDUSTRY, THE DEPARTMENT FOR EDUCATION AND SKILLS AND HM TREASURY'S EVIDENCE BASED POLICY FUND.
ENQUIRIES TO G.MASON@NIESR.AC.UK.

THE BUSINESS BENEFITS OF DIVERSITY

Organisations committed to equality of opportunity have been extending their equal opportunities policies into diversity policies. The argument is that, through providing a wider range of skills, knowledge and approaches, diversity enhances product development, sales, marketing, public relations, productivity and profits and improves adaptability to change. Cultural diversity is key and so diversity policies increase demand, at all levels of the workforce, for, inter alia, *ethnic minorities, women and disabled people. Diversity is claimed to afford a) greater access to different perspectives and knowledge; b) greater understanding of the diversity of customers; c) better communication with the diversity of customers; and d) improved legitimacy among a wider audience.*

THIS RESEARCH WAS FUNDED BY THE CHARTERED INSTITUTE OF PERSONNEL AND DEVELOPMENT (CIPD) AND CONDUCTED BY TRACY ANDERSON AND HILARY METCALF.
ENQUIRIES TO H.METCALF@NIESR.AC.UK.

NIESR was commissioned critically to assess the evidence on indirect benefits (i.e. non-human resources benefits). We found little robust evidence for the claimed business benefits. Research has concentrated on processes and intermediate outputs (such as problem-solving, communication and conflict) and has not identified the effect on output or profits. Much of the research has used experimental methods, which raise questions about the applicability of results to real situations. Nevertheless, previous research provides useful insights.

Diversity tended to improve problem solving and the generation of ideas. However, in the case of value diversity (which includes diversity in attitudes and personality), there was evidence of a negative impact. Certain types of diversity increased conflict, worsened communication among employees and raised management costs. The impact on conflict reduced over time. Importantly, organisational factors mediated the effects of diversity, with good communication among employees and the encouragement of external cooperation and communication contributing to benefits. Routine work reduced the impact of ethnic and tenure diversity on conflict, but increased the impact for functional diversity.

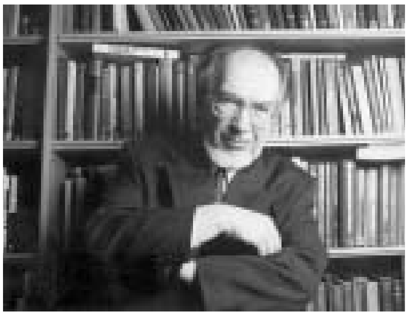
The study showed clearly that benefits could be reaped from diversity, but that these were dependent on the nature of the diversity, organisational policies and practices and the nature of the job. It also showed a great need for further research in this area.

Effect	**Form of diversity**					
	demographic		organisational			psych or value
	age	*ethnic*	*functional*	*tenure*	*education*	
Ideas/problem solving		•	•	•	•	x
Conflict		x	x	x		x
Internal communication	x	x	x		x	x
Management costs				x		

• improvement x worsened empty cells indicate lack of evidence

MORE QUESTIONS THAN ANSWERS – THE OECD EDUCATIONAL SURVEY

Many hopes were raised by the incredible success of Britain's school leavers, following publication at the end of 2001 of the results of OECD tests of the educational attainments of 15 year-olds, carried out in schools in some thirty countries in April 2000. 'Technical details' on the objectives and conduct of the survey did not appear till Summer/Autumn 2002; those 'details' raised important questions as to the proper objectives of such tests, as to the way these tests were carried out, and how the results should be interpreted.



Professor Sig Prais, Senior Research Fellow at the National Institute.

The OECD tests, known as PISA (Programme for International Student Assessment), followed school tests conducted only a year previously, in 1999, by the IEA (International Association for the Evaluation of Educational Achievement); those IEA tests, their Third International Mathematics and Science Study (TIMSS for short), were based on 14 year-old school pupils. If samples of 14 year-olds were tested in 1999 and samples of 15 year-olds in 2000, it is clear that much the same underlying cohort of pupils was under investigation in both inquiries. It is hardly likely that any substantial real change in countries' relative attainments had taken place in the course of a single year; any difference between the published results of the two inquiries – in particular, the great apparent rise in Britain's international ranking – is thus likely to be the consequence of differences in survey methods. The nature of those differences in method did not feature in the PISA reports; they have been put under the microscope at NIESR with the following main results.

First, previous (IEA) international tests of pupils' achievements were based on questions related to the school curriculum; for example, the now famous simple subtraction sum '4000–2369 (tick one of four possible answers)' was set to 13 year-olds in the IEA tasks of 1995. Correct answers were ticked by some 90 per cent of pupils in five major European countries; but by only under half of pupils in Britain. The problem did not however originate in Britain's *secondary* schools, since a parallel IEA inquiry into *primary* school children, aged 9, again showed 90 per cent of Continental pupils of that age capable of answering that same question correctly – but only 15 per cent of British pupils. Clearly, those IEA inquiries knew how to ask policy-relevant questions: there were consequent great changes in Britain's primary-school mathematics syllabus.

The new PISA survey distanced itself from curriculum-oriented questioning: they decided to test K*nowledge and Skills for Life* (the title of their report), that is to say, their questions were to test how pupils could apply their life-experience to everyday post-school, 'realistic', problems. PISA was not always successful in choosing such questions, and many of the questions seem more tests of 'common sense', ingenuity, or of 'IQ'. But the important point in interpreting the results is this: doubts about the common sense (or IQ) of British pupils have never been at issue: the issue, rather, has been whether English pupils have been as well served by their schooling system as they might be. On that issue it seems that the previous IEA inquiries are more relevant than the new PISA inquiry. It is of related interest that the German PISA inquiry was in two parts: (a) a sample of 2500 pupils and (b) a much larger sample, of 50,000 pupils, who were given mathematical questions closer to the German school curriculum, so as to provide more reliable comparisons within Germany; we cannot here go into the pros and cons of the different question-types, but it is clear that the

7003 – <u>4078</u> _____	Britain came 37th out of 38 countries in the 1999 IEA International Survey in which 14 year-olds were asked to complete this simple subtraction.

types and objectives of the PISA questions were not minor issues.

Secondly, we have to notice that the PISA inquiry was based on 15 year-olds defined by year of birth (1984), whereas the previous IEA inquiries were based on defined school-classes (for example, Year 9 or the 'eighth grade'). There is not much difference as far as Britain is concerned since school classes are closely defined by date of birth. But in most Continental schools there is flexibility at entry to schooling according to rate of maturation; a summer-born slow-maturing boy (a typical source of difficulty in British schools) would, on the Continent, often enter school a year later. By age 15 he will then be in a lower class than others of his age, and so not be quite as ready to deal with PISA questions related to 'post-school life contexts'; similar considerations apply where a Continental child 'repeats' a school year – an option that, in practice, is not available in Britain. In practice, only 60–70 per cent of German, Swiss or Belgian 15 year-olds were in their 'normal' class year for the PISA inquiry. The issue is therefore far from negligible, and must have contributed substantially to the lowering in PISA of Continental pupils' recorded performance in relation to Britain. As for the effectiveness of schooling in reality, the Continental schooling-entry practice may well be of greater help to slower maturing pupils than the British 'one size fits all' approach; but no attempt was made in the PISA reports to cast light on this issue.

Thirdly, there is the statistical problem of bias in sample surveys resulting from low response; this was much more serious in Britain. Within participating British schools, only 80 per cent of representative samples of pupils responded: 10 percentage points lower than in leading West European countries, and 10 points lower than in the previous IEA surveys. There can be little doubt that, on the whole, non-respondents were of lower attainment, and thus contributed to raising Britain's *recorded* (not true) average in PISA. There were also problems in Britain with securing participation from the randomly-selected sample of schools: only some 60 per cent of selected schools in Britain agreed to participate (compared with 95 per cent in Western Europe) with consequences for reliability that need not be spelled out further.

Much can be learnt from international comparisons of schooling, but comparisons need to be carried out in a way very different from this recent effort.

A FULL REPORT OF THE NIESR EXAMINATION OF PISA WAS PUBLISHED IN AN ARTICLE BY S.J. PRAIS IN THE *OXFORD REVIEW OF EDUCATION*, 29, 2, PP. 139–63, AND WAS FEATURED ON BBC TV *NEWSNIGHT* ON 15 JANUARY 2004.
ENQUIRIES TO SJ.PRAIS@NIESR.AC.UK.

EVENTS DURING 2003

The National Institute of Economic and Social Research continued to develop its highly successful programme of events in 2003.

Two events were held during the year concerning the impact of monetary union in Europe. In March, a seminar on *UK and European Monetary Union* gave NIESR staff an opportunity to present their research to an audience of policymakers and economics commentators. In June another meeting discussed *EMU: An Assessment of the Assessment*, at which Martin Weale spoke on 'Convergence Issues', Ray Barrell on 'Modelling Euro Accession' and Professor Iain Begg (LSE) gave a talk entitled 'Clear and Unambiguous: Measuring without a metric?' Chris Alsopp (University of Oxford, former MPC member) and E. Philip Davis (NIESR and Brunel University) also contributed to the debate.

In May Geoff Mason and John Forth collaborated with the Warwick Institute for Employment Research and the Department for Education and Skills to organise a workshop for skills research and policy analysts entitled *Employers Skill Surveys: New Analyses and Lessons Learned*.

All of NIESR's major one-day conferences in 2003 attracted a high-level audience of policymakers, business people and academics:

A BIOLOGICAL AND SOCIO-ECONOMIC ASSESSMENT OF THE CONSEQUENCES OF AN AGEING POPULATION

The purpose of this conference in January was to promote multidisciplinary discussion of ageing by bringing together biological research on epidemiology, life-spans and ageing disorders and to make an assessment of the economic and social changes which are associated with them. The conference began with an account of current research into ageing processes and was followed by a survey of current epidemiological trends and their social and budgetary implications. The meeting continued with a specific account of

Professor Tom Kirkwood, University of Newcastle, presenting his paper 'What is a lifespan?' at the British Academy on 23 January.

Alzheimer's Disease and an assessment of different methods of paying for long-term care of the elderly. The conference was jointly organised by NIESR and the Institute of Psychiatry.

MACROECONOMICS AND THE POLICY PROCESS

At this conference, held at The London Chamber of Commerce & Industry in May, leading macroeconomic modellers and forecasters presented their recent work. The sessions included presentations on the latest developments in modelling methods and showed how economic modelling is used to explore current issues of policy interest in the United Kingdom, at the European Commission and in the European Central Bank.

THE RELIABILITY OF SOCIO-ECONOMIC INDICATORS

An important one-day conference in October looked at the issue of data reliability, which is

Dr James Mitchell of the National Institute (left facing) and Professor Ken Wallis (Chairman) at the conference on 'The reliability of socio economic indicators', held at NIESR on 7 October.

fundamental to users of economic and social indicators, and which bears on the importance to be given to such indicators in policymaking and analysis. There was, however, little discussion of reliability issues and producers of statistical data traditionally say very little on the topic. The conference brought together speakers who were able to provide an indication of the current state of knowledge in this important area.

EVALUATING PERFORMANCE IN PUBLIC SERVICES

In November the National Institute organised a second conference in a series devoted to this important issue, following last year's highly successful conference on *Productivity and Performance in the Provision of Public Services*. The recent increases in public sector spending have highlighted the need to evaluate the performance of the provision of public services. This conference considered both the measurement of performance and the incentive structures facing service providers.

Professor Roger Bowles, Centre for Criminal Justice Economics and Psychology, University of York, presenting his paper 'A measure of public safety and its application to the criminal justice system' at the British Academy on 13 November.

THE SIR RICHARD STONE LECTURE SERIES

In November the Bank of England and the National Institute hosted the annual lecture in the series jointly organised by NIESR and Cambridge University Press in which leading economists take part. At the meeting at the Bank

Professor Otmar Issing (right), European Central Bank and Professor Charles Bean, Bank of England, at the Stone Lecture held at the Bank on 3 November.

of England we were delighted to have Professor Otmar Issing, from the European Central Bank, to talk on *Monetary Policy in Uncharted Territory*. Professor Vitor Gaspar, also from the European Central Bank, presented *Learning and Conservatism* at the National Institute the following week. Both seminars were highly topical and raised a significant amount of media interest.

THE ESRC/NIESR WESTMINSTER ECONOMICS FORUM

We started 2003 with a new series of seminars – this time on the subject of *Risk*. Professor David Webb (LSE), spoke on *Is Financial Risk Different*?; Professor Brian Wynne (Lancaster University), on *Is Environmental Risk a Cinderella Issue*?; and Professor Christopher Hood (University of Oxford), on *Blame Avoidance, Risk and Negativity Bias*. The series concluded with a dinner hosted by HM Treasury at which Professor Simon Deakin spoke on *Learning from Enron: Risk and Responsibility in Corporate Governance*. At the end of the year a new series began on the theme of *Migration*, when Professor Tim Hatton (University of Essex) presented *Seeking Asylum in Europe*. Frances Cairncross, CBE, Managing Editor of *The Economist* and Chair of the Economic and Social Research Council, continues to chair the series and Paul Wallace, also of *The Economist*, acts as Rapporteur and provides summaries of the talks.

Financial Structure: An Investigation of Sectoral Balance Sheets in the G-7

by Joseph P. Byrne and E. Philip Davis

Cross-country comparisons of sectoral balance sheets offer crucial indications of differences in overall financial structure, which in turn underlie contrasts in financing and economic behaviour. In this context, this book aims to confront theory and extant empirical work with aggregate financial data across the G-7, covering the period from 1970 to 2000. Viewed in the light of the main theoretical and empirical results in the economic literature, it explores the contrasting patterns and development of financial structures in the UK, the US, Germany, Japan, Canada, France and Italy. It uses as raw material sectoral balance sheet data published by national statistical authorities across the corporate, household, general government, foreign, financial, banking and institutional-investor sectors.

Cambridge University Press

ISBN 052 18318 0 6.

Pension Reform: Redistribution and Risk

edited by Martin Weale

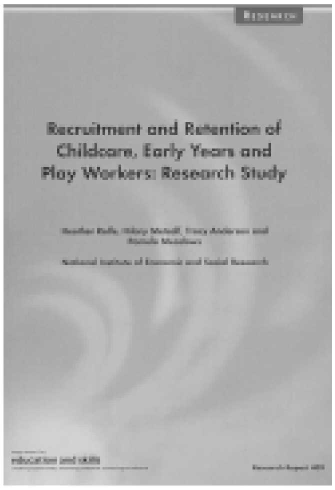
This book presents six papers on questions of social security and pension reform. Both empirical and theoretical issues are addressed with specific analysis of problems faced by Finland, Germany and the Netherlands. The issues discussed include early retirement, demographic and other aspects of risk, redistribution and the interaction between political and economic forces shaping pension reform.

NIESR Occasional Paper 56.

Recruitment and Retention of Childcare, Early Years and Play Workers

by Heather Rolfe, Hilary Metcalf, Tracy Anderson and Pamela Meadows

To achieve the National Childcare Strategy's aim of expanding the number of childcare places, it is important that recruitment and retention of childcare, early years and play workers is fully understood. The aim of this predominately qualitative research study was to identify key issues surrounding recruitment and retention, and to obtain childcare workers' own perspectives on their jobs. In addition, the study was intended to inform the national recruitment campaign by identifying successful and less successful approaches to the recruitment and retention of childcare workers, by EYDCPs and providers. One aim of the study was to find examples of good practice, which other partnerships and providers might use to improve recruitment and retention rates. These are published separately as guides to good practice for partnerships and for providers



DfES Research Report no. 409.

A Firm Decision: The Recruitment of Trainee Solicitors

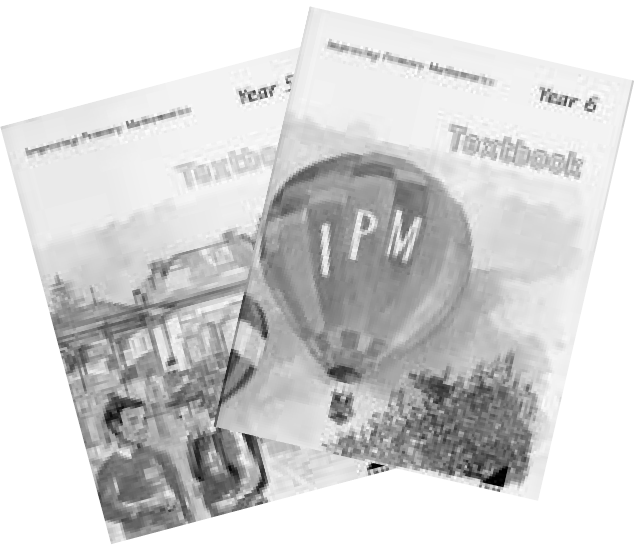
by Heather Rolfe and Tracy Anderson

This report shows that law firms favour graduates from old universities when recruiting trainee solicitors and that this may explain disadvantage among applicants from ethnic minorities and lower social classes in gaining a training contract. Not only do firms select applicants for interview according to which university they attend, but they target their recruitment activities at favoured old universities, particularly Oxford and Cambridge. One reason given for this is the image of the firm among clients. The report concludes that young people from privileged social class backgrounds, and particularly those with a relative in the profession, benefit from greater access to information about careers in law and practical experience at all stages, and that this is compounded by the closer contact between law firms and their favoured universities.

Published by The Law Society.

Improving Primary Maths

The partnership between the National Institute and inspectors at the London Borough of Barking and Dagenham has now been completed, with teaching materials produced up to Year 6 of schooling, after a development phase of six years. These new materials are the most up-to-date in the country, taking account of the demands of the revised national tests for Year 6 pupils. They are now in use in a substantial number of schools covering Barking and Dagenham, Clackmannanshire, Kirklees, Leeds, Wiltshire, West Lothian and Wiltshire. Many individual schools in other parts of the country and even the International School in Havana are now teaching the IPM way. A key feature is the level of support given to teachers in terms of a very well thought out curriculum, detailed lesson notes and plentiful resources and a number of recent OFSTED reports have testified to the success of the project in raising standards. In Barking and Dagenham a record number of pupils are now scoring at the higher level (Level 5) in national tests at age 11.



The latest two books in the Improving Primary Maths pupils' series: Years 5 and 6.

Further development work is planned for the future, together with work on pedagogy generally.

Detailed information and examples of pupils' and teachers' materials is available at www.ipmaths.co.uk.

Forthcoming publication
Integration, Accession and Expansion

by Ray Barrell, Dawn Holland and Olga Pomerantz

This book focuses on the eight accession countries from Central and Eastern Europe, which spent the fifteen years prior to EU membership in transition from centrally planned to market economies. The current EU enlargement is no larger, in terms of population, than previous enlargements, but the Union itself has changed, with stronger rules and commitments on the part of its members. This volume draws together a diverse set of issues related to the occasion, providing a context in which to analyse the impact that the expansion is likely to have on both incumbent and acceding members of the EU. The publication draws on parallels to previous enlargements where appropriate, and discusses in depth the Single Market Programme, the benefits and perils of EMU membership and the Common Agricultural Policy. The impact that enlargement is likely to have on capital flows and migration, drawing on a growing body of existing research in these key areas, is also discussed. Policy recommendations are offered throughout the text.

This book will be published in the NIESR Occasional Paper series early in 2004.

Sage Publications has continued to publish the National Institute Economic Review throughout the year. Revenue received from the royalties associated with this arrangement was £109,000. Marketing and subscription activity are regularly reported to the Institute's Council of Management through written reports and presentations.

Articles which appeared during the year were as follows:

No. 183 (January)
Asymmetric labour markets in a converging Europe: do differences matter?
Ray Barrell and Karen Dury
Economic policy coordination in the European Union
Iain Begg, Dermot Hodson and Imelda Maher
Comparing bear markets – 1973 and 2000
E. Philip Davis
Business cycles and turning points: a survey of statistical techniques
Michael Massmann, James Mitchell and Martin Weale

No. 184 (April) Themed issue on the role of information and communications technology
The role of information and communications technology
Mary O'Mahony
The growth of ICT and industry performance – manufacturing in the US and UK compared
Mary O'Mahony and Catherine Robinson
The employment of IT personnel
Michael Peneder
The employment effects of the 'new economy'. A comparison of the European Union and the United States
Bart van Ark, Robert Inklaar, Robert H. McGuckin and Marcel P. Timmer
The impact of ICT investment on establishment productivity
Thomas Zwick

No. 185 (July)
Benchmarks and targets under the SGP. Evaluating safe deficit targets using NiGEM
Ray Barrell and Ian Hurst
Annualised hours contracts: the way forward in labour market flexibility?
David N.F. Bell and Robert A. Hart
The domestic performance of UK multinational firms
Sourafel Girma
Foreign ownership, microelectronic technology and skills: evidence for British establishments
Dirk Willem te Velde

No. 186 (October) Themed issue on policy evaluation
Introduction
Pamela Meadows and Hilary Metcalf
An evaluation of business start-up support for young people
Nigel Meager, Peter Bates and Marc Cowling
Evaluation using random assignment experiments: demonstrating the effectiveness of earnings supplements
Doug Tattrie and Reuben Ford
Measuring the macroeconomic effects of reducing benefit dependency
Ray Barrell, Simon Kirby, Rebecca Riley and Desirée van Welsum
Economic evaluation of complex health and social care interventions
Sarah Byford and Tom Sefton

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O'Mahony, M., 'Employment, education and human capital', chapter 5 in Floud, R. and Johnson, P. (eds), *The Cambridge Economic History of Modern Britain, Volume III, Structural Change and Growth, 1939–2000*, Cambridge, Cambridge University Press.

O'Mahony, M. and van Ark, B. (eds), *EU Productivity and Competitiveness: An Industry Perspective. Can Europe Resume the Catching-up Process?*, European Commission.

Pain, N., 'Fiscal policies, European integration and structural changes in the location of German foreign direct investment', in Herrmann, H. and Lipsey, R.E. (eds), *Foreign Direct Investment in the Real and Financial Sector of Industrial Countries*, Springer.

Pain, N. and van Welsum, D., 'Untying the Gordian knot: the multiple links between exchange rates and foreign direct investment', *Journal of Common Market Studies*, 41, pp. 823–46.

Pain, N. and Young, G., 'The macroeconomic impact of UK withdrawal from the EU', *Economic Modelling* (*forthcoming*).

Rincon, A. and Vecchi, M., 'Productivity performance at the company level', in O'Mahony M. and van Ark, B. (eds), *op.cit*.

Robinson, C., Stokes, L., Stuivenwold, E. and van Ark, B., 'Industry structure and taxonomies', in O'Mahony, M. and van Ark, B. *op. cit.*

Rolfe, H., 'Developing good practice in connexions: techniques and tools for working with young people', *Connexions*, DfES.

—, 'The tools of the trade: developing counselling approaches within Connexions, *Assessment Matters*, October.

—, 'University strategy in an age of uncertainty: the effect of higher education funding on old and new universities', *Higher Education Quarterly*, January.

Rolfe, H., Metcalf, H., Anderson, T. and Meadows, P., *Recruitment and Retention of Childcare, Early Years and Playworkers*, Research Study, DfES Research Report 409.

Šmídková, K., Barrell, R. and Holland, D. 'Estimates of fundamental real exchange rates for the five EU pre-accession countries', *Prague Economic Papers*, 12(4), pp. 291–315.

Stevens, P.A., 'Firms' expectations and employment behaviour: evidence from a panel of UK manufacturing firms', *Economics Letters*, 81, 3, pp. 307–10.

Stevens, P.A. and Weale, M.R., 'Education and economic growth', in Johnes, G. and Johnes, J., *International Handbook of the Economics of Education*, Edward Elgar (*forthcoming*).

Papers presented

Barrell, R., 'Is there a common (European) business cycle?', Kieler Woche Conference on Business Cycles, Kiel University, June.

—, 'Sustainability and responses to imbalances', United Nations conference on the World Economy, New York, and European Central Bank, Frankfurt, November.

Barrell, R. and Becker, B., 'Shocking the German economy: policy analysis with different rules', Berlin, DIW, October.

Barrell, R. and Choy, A., 'Economic integration and openness in Europe and East Asia', Japanese Foreign Ministry ASEM Symposium, Tokyo, March.

—, 'Monetary union in Africa: lessons from EMU', keynote address, Association of African Central Bank Governors, Kampala, Uganda, August.

Barrell, R., Choy, A. Gottschalk, S. and Holland, D., 'Does foreign direct investment enhance Hong Kong export performance', 14th Chinese Economic Association Conference, April.

Barrell, R. and Davis, E.P., 'Shocks and shock absorbers: the international propagation of equity market shocks and the design of appropriate policy responses', NIESR conference on 'Macroeconomics and the Policy Process', May; Bank of Canada Conference on 'Equity markets and growth', Ottawa, May.

Barrell, R., Gottschalk, S. and Hall, S.G., 'Foreign direct investment and exchange rate uncertainty in imperfectly competitive industries', Money Macro Finance Conference, September.

Barrell, R., Hurst, I. and Kirsanova, T., 'Choosing the regime in an uncertain world, the UK and monetary union', Royal Economic Society conference, April.

Barrell, R. and Mitchell, J., 'Cyclicity and international financial developments: cycles and systemic risks, contagion and globalisation and institutions and financial stability', Bank of France Symposium on Business Cycles, March.

Becker, B. and Hall, S.G. 'Foreign direct investment in industrial R&D and exchange rate uncertainty in the UK', Annual Conference of the European Association of Research in Industrial Economics, Helsinki, August; and Annual Conference of the Macro, Money and Finance Research Group, Cambridge, September.

Becker, B. and Pain, N., 'What determines industrial R&D expenditure in the UK?', Macro User Group meeting, NIESR, January.

Davis, E.P., 'Institutional investors, financial market efficiency and stability', conference on 'Europe's changing financial landscape', Luxembourg, European Investment Bank, January.

—, 'Demographics and financial asset prices', Oxford University Centre on Ageing, May.

—, 'Corporate financial structure and financial stability', GDR/MMF conference, University of Birmingham, June.

—, 'Is there a pensions crisis in the UK?', Japan Pension Research Council Meeting, Tokyo, September.

—, 'Financial development, institutional investors and economic performance', British Association conference, Salford, September.

—, 'Monitoring financial stability', Central Banking conference, Christs College Cambridge, September.

Holland, D., 'Why has the UK outperformed the Eurozone in recent years?', Club Perspectives Economiques d'Ensemble, Paris, September.

Holland, D. and Pomerantz, O., 'Modelling the role of FDI in trade in the EU accession countries', 18th Annual Congress of EEA, Stockholm, August; 28th annual IESG Conference, Birmingham, September.

Kirby, S. and Riley, R., 'Compulsory work-focused interviews for inactive benefit claimants: an evaluation of the British ONE pilots', 15th European Association of Labour Economists conference, 18–21 September, Seville, Spain.

Kneller, R. and Stevens, P.A., 'Absorptive capacity and frontier technology: evidence from OECD manufacturing industries', Royal Economic Society Annual Conference, University of Warwick.

Mitchell, J., 'Survey data', Centre for Central Banking Studies, Bank of England, April.

—, 'Should we be surprised by the unreliability of real-time output gap estimates? Density estimates for the Eurozone', Conference on 'The Reliability of Socio-Economic Indicators', NIESR, October; 4th DG ECFIN and Eurostat Colloquium on Modern Tools for Business Cycle Analysis, October; Department of Economics, Warwick University, November.

Mouratidis, K., 'Asymmetries and credibility in monetary policy of the Euro Area', 4th EUROSTAT and DG ECFIN Colloquium on Modern Tools for Business Cycle Analysis.

Mouratidis, K. and Spagnolo, N., 'Evaluating currency crises: the case of the European

Monetary System', 7th International Conference of Macroeconomic Theory and Policy, 22–24 May, University of Crete, Greece.
O'Mahony, M. and Stevens, P.A., report to the Evidence-Based Policy Fund, HM Treasury.
—, 'International comparisons of performance in the provision of public services: outcome-based measures for education', NIESR conference on 'Productivity and Performance in the Provision of Public Services', Royal Academy.
O'Mahony, M., Robinson, C. and Vecchi, M., 'The impact of ICT capital and labour quality on productivity', 30th Annual Conference for the European Association of Research in Industrial Economics, Helsinki, August.
O'Mahony, M. and Vecchi, M., 'Is there an ICT impact on TFP? A heterogeneous dynamic panel approach', *Royal Economic Society Conference*.
Prais, S.J. 'Educational standards and economic progress', HM Treasury Economics Seminar, January.
—, 'International surveys of schooling attainments', Civitas, London, November.
Rolfe, H., 'Using counselling tools and techniques with young people', 'Assessment Connections', annual conference of the National Association for Assessment in Guidance, November.
Thorpe, A. and Robinson, C., 'US and EU differences over the labelling of food products derived from genetically modified organisms', *Agriculture and Human Values* (*forthcoming*).
Weale, M.R., 'Education and economic growth', London School of Economics, November.
—, 'Lazy students', Oxford University, November.

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The global model – NiGEM – is widely regarded as one of the world's leading models and is used extensively for forecasting and analytical purposes in both public and private sectors. NiGEM patrons include the Bank of England, the European Central Bank, the Economic Planning Agency of Japan and many other European Central Banks and Finance Ministries.

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Corporate membership of the Institute was introduced in 1994 to facilitate a close link between the Institute and its leading financial supporters. Our Corporate Members are acknowledged in the UK economy section of the National Institute Economic Review *as their donations help us to produce our regular forecasts. A full list of companies participating in the scheme in 2003 can be found on the following page.*

Corporate Membership gives organisations the opportunity to attend discussion meetings held especially for our members as well as the meetings held for users of our econometric models. The latter cover discussions of the background to our economic forecasts. They take place quarterly and are only open to model subscribers, the Press and Corporate Members.

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- briefings on NIESR's quarterly forecasts of the UK and World economies;
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During 2003, corporate members were also invited to meetings relating to our quarterly forecast. These are designed to present findings to a specialist audience prior to publication of the *National Institute Economic Review*. They also give our members the opportunity to discuss the issues involved with members of the research teams directly involved in the economic forecasts and analysis.

FURTHER DETAILS ABOUT THE CORPORATE MEMBERSHIP SCHEME ARE AVAILABLE FROM THE SECRETARY, GILL CLISHAM, ON 020 7654 1920 OR G.CLISHAM@NIESR.AC.UK

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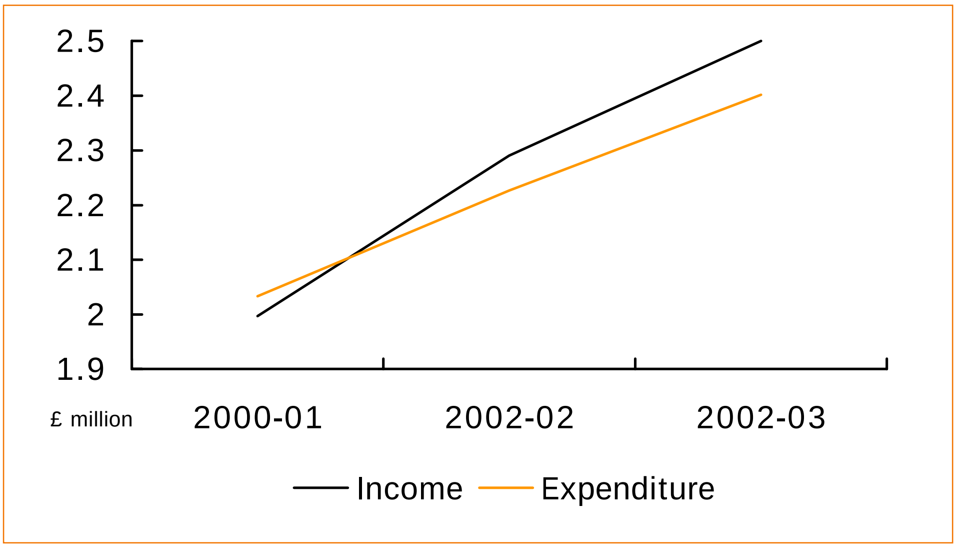
In the year to 31 March 2003 the Institute reported an operating surplus for the year. The policy of the Council is to balance income and expenditure over the long term, while recognising that fluctuations may occur in individual years. Full accounts for each of the years listed, including an unqualified audit report from KPMG Audit plc, have been filed at Companies House and the Charities Commission.

	2002–3	*2001–2*	*2000–2001*
	£	£	£
INCOME			
Research	1,497,214	*1,527,578*	*1,307,346*
Publications	780,306	*536,045*	*433,266*
Corporate supporters	88,422	*109,755*	*109,136*
Investments and interest	133,730	*117,327*	*146,791*
Total income	2,500,172	*2,290,705*	*1,996,539*
EXPENDITURE			
Research	1,682,776	*1,615,649*	*1,480,249*
Publications	378,695	*256,106*	*200,038*
Premises	53,722	*60,064*	*89,396*
Administration and general services	256,366	*294,719*	*263,345*
Total expenditure	2,401,558	*2,226,538*	*2,033,028*
OPERATING SURPLUS/(DEFICIT)	98,613	*64,167*	*(36,489)*



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