

National Institute Economic Review

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Executive Summary

The Review is the quarterly publication of the National Institute of Economic and Social Research. Each issue contains a survey of the economic situation and prospects in the UK and in the World. In addition there are articles which cover related issues in greater depth.

The latest issue is published on:

Friday 30th April with a release time to the press of
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The April 2004 edition contains the following research articles:

- **Simulating household savings and labour supply: an application of dynamic programming**
James Sefton and Justin van de Ven
- **The effects of an increase in petrol excise tax: the case of New Zealand households**
John Creedy
- **Economic performance in France, Germany and the United Kingdom: 1997–2002**
Robert Metz, Rebecca Riley and Martin Weale
- **The volatility of the output gap in the G7**
Ray Barrell and Sylvia Gottschalk

The world economy

Ali Al-Eyd, Ray Barrell, Bettina Becker, Amanda Choy, Sylvia Gottschalk, Dawn Holland and Olga Pomerantz

- **Growth in global GDP will gather momentum, rising from 3.5 per cent in 2003 to 4.2 per cent this year.**
- **Strong growth in the US will underpin the world recovery: American GDP will rise by 4.3 per cent in 2004.**
- **The Chinese economy, forecast to grow by 8.4 per cent in 2004, is the other driving force in the global recovery but the risk of a setback in China is rising.**
- **The Euro Area will experience only a modest pick-up in growth, with GDP increasing by 1.8 per cent in 2004 and by 2.3 per cent in 2005.**
- **Japan's economic prospects have brightened: GDP will rise by 2.5 per cent this year.**

World economy: continued robust expansion of 4.1 per cent in 2005

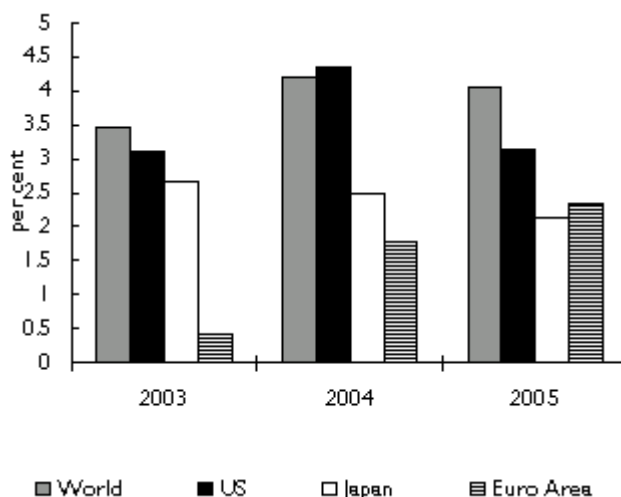
The world economy will grow this year at its fastest rate since 2000. The outlook for 2005 is for continued robust expansion of 4.1 per cent. An upswing in world trade is bolstering weaker economies like the Euro Area and Japan. World trade in goods will rise by 9.5 per cent in 2004 and by 10.2 per cent in 2005.

The strong outlook for the American economy in 2004 is broadly based. Consumer spending will rise by 3.6 per cent and government consumption by 5.2 per cent. Helped by low interest rates, investment in housing will increase by 5.8 per cent. Business investment will grow by 3.7 per cent. Net trade will also add

to growth, with exports forecast to rise by 8.3 per cent. However, future growth prospects will be crimped by the need to cut the budget deficit, forecast to reach a high of 5.9 per cent in 2004.

With its economy growing in the past few years at an annual rate of over 8 per cent, China has become the world's third largest importer. Growth in imports reached 41 per cent in 2003,

GDP growth



a key impetus to the global recovery. However, with clear signs of overheating, the risk of a hard landing is increasing. A fall in Chinese import demand would cut growth prospects, especially in Japan and Europe.

Euro economy growth:
1.8 per cent this year

Despite the strengthening global economy, recovery in the Euro Area will be a modest affair. The economy will grow by only 1.8 per cent this year. The upturn will be held back by sluggish growth in investment and household consumption, with sentiment affected by worries about higher unemployment. Growth is expected to pick up to 2.3 per cent in 2005, but the output gap will not be closed until 2007.

In contrast, the prospects for the Japanese economy have improved. Output will increase by 2.5 per cent in 2004 and by 2.1 per cent in 2005. Domestic demand will increase by 2 per cent this year, boosted by growth in business investment of 8.2 per cent. Consumer spending will rise by 1.4 per cent. Net trade will add to GDP growth. Exports will rise by 9.7 per cent whereas imports will increase by 6.5 per cent.

The UK economy

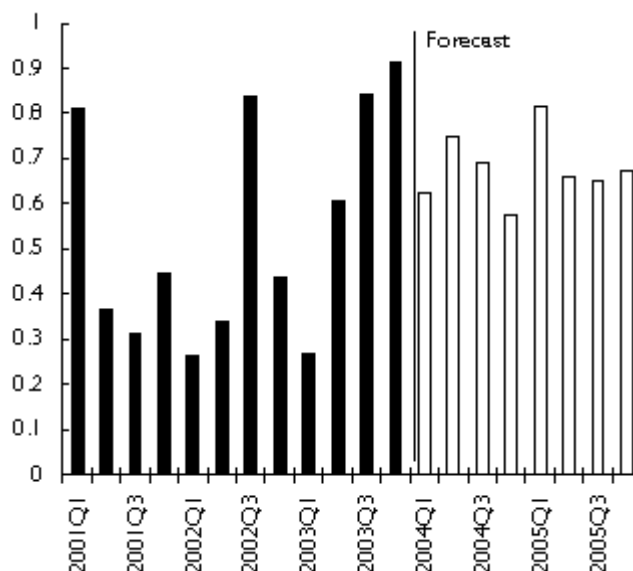
Ray Barrell, Simon Kirby, Robert Metz, Rebecca Riley and Martin Weale

- **The economy will grow by 3 per cent in 2004 and by 2.8 per cent in 2005.**
- **Consumer spending will increase this year by 3.3 per cent, and investment will rise by 6.8 per cent.**
- **Exports will grow in 2004 by only 2 per cent, whereas imports will rise by 4.9 per cent. The current account deficit will rise this year to 2.5 per cent of GDP.**
- **The present dip in consumer price inflation will be short-lived: it is expected to rise above 2 per cent in a year's time.**
- **The budget deficit will be around 3 per cent of GDP over the next three financial years.**
- **A fall in house prices of 20 per cent would cut GDP growth by up to 1.25 per cent in the following year.**

The strength in the housing market will also support a surge in investment

The economic recovery will become entrenched in 2004. Buoyant domestic demand will drive the economy forward as consumers get second wind and investment rises sharply. Consumer spending will grow strongly thanks to a strengthening labour market and further gains in housing wealth. The strength in the housing market will also support a surge in investment, led by rapid increases in public investment. Household spending will contribute 2.3 per cent to GDP growth. The investment boom will add a further 1.2 per cent.

Real GDP growth (per cent per quarter)



This year's upturn will be unbalanced. The economy will expand less rapidly than domestic demand, set to rise by 3.8 per cent, because net trade will subtract 1 per cent from GDP growth. Despite the strong upswing in world trade, export growth will be dampened by the appreciation of the pound and weakness in the Euro Area. Growth in 2005 will be better balanced. Net trade will be neutral, so GDP growth will only slow a little

to 2.8 per cent, even though growth in domestic demand will fall back to 2.7 per cent.

NIESR calculations suggest that the trend rate of growth is around 2.5 per cent a year. With a margin of spare capacity of only 0.5 per cent of potential GDP last year, the gap between actual and potential output will be closed by the end of the year. Since the economy will continue to grow above trend in 2005, inflationary pressures will mount, pushing CPI inflation above the target rate of 2 per cent in a year's time. This forecast assumes that the Bank of England increases the repo rate in line with market expectations to 4.75 per cent by the end of 2004.

The Government will start the new cycle with a substantial deficit on the current budget of £16.7 billion

With the output gap closed by the end of this year, the first fiscal year of the next economic cycle according to NIESR will be 2005–6. This means that the Government will start the new cycle with a substantial deficit on the current budget of £16.7 billion. A substantial shortfall of £15 billion will persist in 2006–7, when the Treasury suggests the next cycle will start.

A risk to the strong economic outlook is a sharp correction in house prices. The main forecast assumes a gradual deceleration in house price inflation to 4 per cent in 2005. If house prices were to fall by 20 per cent this would reduce consumer spending growth by up to 2.5 per cent in the ensuing twelve months. The overall impact on the economy would be less pronounced but GDP growth would be lowered by up to 1.25 per cent.

Simulating household savings and labour supply: an application of dynamic programming

by James Sefton and Justin van de Ven

This paper describes a fully behavioural microsimulation model that has recently been developed at the National Institute of Economic and Social Research (NIESR). The model is designed to consider household labour/leisure and consumption/savings decisions - two issues of fundamental economic concern - at annual intervals during the simulated lifetime.

Microsimulation models are traditionally classified as either dynamic or static, depending upon how (and whether) the population is aged. Static microsimulation models, as their name suggests, determine the impact of counterfactual conditions upon a population of agents at a point in time. Dynamic models build up a life history for each individual in a population, which significantly increases the range of questions that can be explored, relative to static models.

A dynamic microsimulation model that is designed to consider the effects of fiscal policy may, for example, generate characteristics that include marital status, parenthood, income, and mortality at annual intervals for each person described by a reference database. The income of each individual at any given year is often simulated based on characteristics such as the individual's past income, their demographic characteristics, and upon a stochastic term that accounts for unexplained variation. This type of procedure builds up a life history for each individual in a population, which significantly increases the range of questions that can be explored, relative to static models.

Behavioural response may be modelled using statistical projections estimated from survey data, or an explicit consideration of how decisions are made. The former of these methods is relatively easy to apply, but suffers from inherent inconsistencies. The latter method usually involves assuming that reference units make their decisions to maximise an assumed objective (utility) function, subject to various practical constraints (such as the available funds that a household can spend). It is the most complex computationally, and therefore used only rarely.

The model described by this paper falls into the latter of the categories described above. Specifically, household decisions regarding labour and consumption are simulated by assuming that the household maximises an intertemporal utility function, subject to a budget constraint. This approach is particularly useful when considering counterfactuals that are likely to affect agent behaviour. If, for example, an analysis of alternative pension policies holds household savings and labour supply fixed, then the conclusions derived are likely to be systematically in error - the analysis will fall foul of the Lucas Critique*. Behavioural microsimulation models are motivated by the view that important insights may be obtained by allowing households to adapt their behaviour in response to the incentives of policy counterfactuals.

* According to Robert Lucas, predicting the effects of policy change based on historical data will be invalid if the considered policy counterfactual alters the relationship between relevant variables.

Microsimulation models that incorporate behavioural effects are rare primarily because simulating behaviour is computationally demanding. It is, however, this aspect that presents today's analyst with a tremendous opportunity. Recent advances in personal computing power and software design mean that fully behavioural microsimulation models are now practicable, and anticipated advances mean that such models are likely to become increasingly sophisticated in the near future.

The effects of an increase in petrol excise tax: the case of New Zealand households

by John Creedy

This paper in April's National Institute Economic Review presents a methodology to explore the effects of indirect tax charges on household welfare. Changes in indirect taxes alter the cost of living, with the effect on households depending on spending patterns. But those spending patterns adjust to prices and thus mitigates the effect of the cost of living charge.

The welfare effects of a petrol tax increase are found to vary considerably among demographic groups, reflecting the different variations in budget shares with total expenditure. Importantly the marginal burdens also vary substantially, but in the case studied they are 35% to 55% above the revenue, though most cases range between about 35 and 55 cents per dollar of extra revenue. Public expenditure financed from such a tax increase would therefore need to establish significant external benefits.

Inequality comparisons, based on money metric utility per adult equivalent, are also made based on the distribution of individual values. The majority of household types, along with the overall comparison, showed very small – indeed negligible – increases in inequality. The results suggest that the most important consideration from a selective tax increase arises from the marginal welfare costs generated.

The full paper describes the relationship between tax rates and price changes, the measurement of welfare changes and the way in which household demands are modelled. Potential implications of a tax reform involving an increase in the petrol excise tax are also discussed. The analysis was carried out using New Zealand spending patterns.

Economic performance in France, Germany and the United Kingdom: 1997–2002

by Robert Metz, Rebecca Riley and Martin Weale

This article analyses economic growth in the three countries in terms of the composition of both demand and supply. It begins by discussing relative levels of productivity in the three countries. It notes that ONS data released in February showing output per worker in the UK is now higher than in Germany have been contradicted by more recent OECD data. Nevertheless, using official data the gaps are smaller when examined net of depreciation than the more conventional gross analysis suggests. The former measure is, of course, relevant as an assessment of the capacity of the economy to meet economic needs.

Over the period GDP growth has been similar in France and in the United Kingdom; Germany has grown considerably more slowly. The growth has appeared better balanced in France than in the United Kingdom, however, where there has been a bias towards consumption growth. In terms of real national disposable income, however the UK has substantially out-performed France and Germany's performance is even more depressed. These extra differences are attributed to different movements in the terms of trade and in net income from abroad rather than any effects of government policy. There are nevertheless concerns that UK data fail to show an increasing share of depreciation despite relatively high levels of investment in short-lived ICT capital and the UK's position may therefore be overstated.

Labour inputs in France and Germany are limited by adverse labour market conditions; the paper focuses on the effects of taxes associated with the employment of low-paid workers and suggests that both France and Germany could achieve substantial increases in labour supply and therefore output by moving to UK tax structures. France was, nevertheless able to achieve some increase in labour input over the period; in Germany the increase in labour input was small.

Returns to capital in Germany are lower than in France in a manner entirely consistent with the more capital-intensive nature of the economy. British and French rates of return are similar despite the fact that the British economy is less capital-intensive. They are therefore lower than would be expected if the British economy performed as well as French economy; this is another slant of the UK's poor productivity performance.

If capital input is assessed in terms of changes in the stock of capital then the main differences between the countries lie in terms of the changes to their labour inputs and to total factor productivity. If, on the other hand capital input is measured in terms of capital services, the estimated contribution of capital in the UK is much increased and the estimate of total factor productivity growth falls below that of Germany.

Using OECD estimates of capital inputs, one third of the UK's growth over the period seems to have been accounted for by depreciation although this is not reflected in UK official data. If true it implies UK growth has been of rather low quality. The depreciation content of growth in France and Germany has also been high but not as high as in the UK.

France has delivered a particularly good performance in terms of total factor productivity- increased output without increases in capital or labour input. There is some evidence to suggest that this may be because the quality of the labour force in France is increasing more rapidly than in the UK or in Germany (where there seems to be no improvement at all).

The volatility of the output gap in the G7

by Ray Barrell and Sylvia Gottschalk

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 last 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 ascribed to changes in the policy regime reflected in inflation volatility.

Ray Barrell and Sylvia Gottschalk reported on their work which investigates output volatility in the G7 in a panel context treating policy, financial liberalisation, and openness as competing explanations. They show that inflation volatility on its own cannot account for the reduction in volatility. The authors found that changes in output volatility can be explained by openness to trade and increasing risk sharing that comes from increased financial wealth.

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.

