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Domestic demand still buoyant

Media continue to overstate recession dangers

Terrorist anxieties no longer so dominant

Afghanistan and terrorism are still very much in the news, but they no longer dominate the media as they did in September. The question for the economy has begun to shift "from how much damage has been done?" to "what will the recovery look like?". In fact, there has been too much talk of recession and slump. While unemployment rose in October, the increase was trifling compared with the huge decline since the last peak in early 1993. (In the first quarter of 1993 the unemployment rate, as measured by the claimant count, was just above 10 1/2%; in the third quarter 2001 it slightly exceeded 3%.) Of course, jobs are being lost, particularly in the travel-related sectors hit by the events of 11th September, but jobs are also being created.

Recession fears overstated, with ample evidence of resilient demand for big-ticket items

Advance indicators are mixed, but many are positive. Fluctuations in total spending are heavily influenced by fluctuations in spending on big-ticket items where the timing of the purchase is discretionary. For the personal sector the classic such items are houses, cars and other consumer durables. The top end of the housing market - mostly in London - was slowing even before 11th September. It is essentially a market for wealthy people who balance the relative attractions of stock market equity and housing equity, and switch from the stock market when share prices are high. Falling stock markets since early 2000 seem at last to have hit this top-end activity. But most of the UK housing market is for people of moderate means, many of whom have to borrow to complete a transaction. Building societies' mortgage approvals were a touch higher in October than in September, even before the full benefit from the recent interest rate declines had come through. October data are not yet available for building societies, banks and other specialist lenders taken together, but in the three months to September mortgage approvals at these institutions were £43.2b., more than 50% up on the same period in 2000. Meanwhile car registrations have been exceptionally good. Last month was an all-time record for an October, with 185,325 new car registrations. 2001 has seen five record months and will undoubtedly be the best ever year for new car sales. Construction orders partly reflect demand for residential properties, but corporate and public sector work is more important. With the Treasury keen to promote public-private partnerships and other capital projects, construction orders have been healthy. Figures are not yet ready for October, but in the July-September quarter new construction orders reached £6,358m. (in constant 1995 prices, seasonally adjusted, as calculated by the Department of Trade and Industry), about 6% up on the same quarter in 2000.

Drop in base rates signals buoyant consumer spending in early 2002

More generally, domestic demand has continued to grow faster in 2001 (at roughly 3 1/2% - 4% a year) than the trend rate of output growth (usually put at 2 1/4% - 2 1/2%) The vitality of domestic demand was obvious before 11th September, with the British public seemingly oblivious to the weaker world economy and falling stock markets. The drop in base rates since 11th September - from 5% to 4% - will give further stimulus and justifies forecasts of continued buoyant consumer spending in early 2002.

Professor Tim Congdon 29th November 2001

Summary of paper on "Depopulation and equity returns"

Purpose of the paper

Demographic trends are often said to be good for European equity markets.. In view of the adverse implications of age-ing and a declining workforce for economic growth, the research paper asks whether this is really true.

Main points

* **In the long run investment returns on equities depend on the initial dividend yield and the growth rate of the dividend stream, which - for the equity market as a whole - has to be similar to the growth rate of national output. (See pp. 3 – 4.)**

* **The age-ing of the population now under way in Europe will be associated in the first half of the 21st century with static or falling populations of working age, unless there is heavy immigration. (See pp. 14- 15.)**

* **Over the last 20 years the increase in European output has owed much to the increased employment of women. (See p. 9.) Without the increased employment of women, output growth would have been similar to productivity growth, which ran at only 1 1/2% a year in the 1982 - 99 period.**

* **Output growth depends on two influences, growth in employment and growth in productivity. In the last 30 years productivity growth in Europe has slowed sharply and now seems to be stabilising at 1% a year. (See pp. 8 - 9.)**

* **If productivity growth in the European Union stays at 1% a year, and if demographic forces lead to falls in employment, output growth will be under 1% a year for extended periods in the next few decades. (See p. 16.) It is even possible that national output in a major industrial nation - such as Italy - will contract.**

* **Slow economic growth implies slow growth of dividend streams and little scope for capital gains. It therefore also implies poor returns on equities, unless they start from a higher yield basis. *Europe's demographics are bad for long-run equity returns.***

This paper was written by Professor Tim Congdon, with help from Mr. Jonathan Randall in the preparation of charts. It will form the bulk of a talk to be in given in Edinburgh to an Actuarial Profession conference in Edinburgh on 20th - 22nd January 2002.

Depopulation and equity returns

Could demographics reduce Europe's trend annual growth rate to 1%?

Age-ing of societies said to be good for equity returns

At the height of the bull market in equities in 1999 and 2000 a common argument was that deep-seated demographic trends would keep share prices moving forward. The central claim was that the age-ing of the population would raise the number of people in the high-saving age group between 40 and 60. Age-ing would therefore lead to more savings. Since the flow of new savings had increasingly been to equity-based products over the previous 25 years, the extra savings would boost the demand for equities. In this way demographics were thought to provide not just a rationale for the high level of share prices, but even a justification for further advances. (Mr. Paul Wallace's book *Agequake* mentioned some of these points and developed them with notable clarity.) The setbacks in equity markets since early 2000 have prompted some rethinking, but the same general thesis continues to be mentioned in newspapers. For example, on 4th November the "Money" section of *The Sunday Times* contained an article by Nick Gardner on 'Baby boom will bring a boom in stocks'. It referred to work by Harry Dent, an American investment strategist, which argued that people are most productive in their late forties (at age 47, to be precise), and that both "spending waves" and stock market peaks are related to the numbers of people in this age bracket.

But what are the determinants of long-run returns on equities?

The purpose of the current research paper is to challenge the ideas proposed by Wallace, Dent and others. Indeed, a strong case can be made that - very far from being helpful for equities - demographic trends in some industrial economies, particularly in Europe, will cut equity returns sharply in coming decades. A key preliminary question here is "what are the determinants of the long-run return on equities?".

Some investment strategists appeal to the "equity risk premium", the difference between the total returns that investors require on equities and bonds, as the vital concept in this field. Of course, investors do need a higher expected total return on equities - because of their volatility and unpredictability - than on bonds. However, to say that equities need a higher expected return does not mean that in practice they will automatically deliver a higher return.

Notion of an "equity risk premium", which captures role of risk preferences in equity pricing

A standard approach here is to examine historical data, ascertain the actual excess return on equities over an assumedly relevant past period and project that excess into the future. But this is little better than blind man's bluff. Too much depends on the periods and indices of share prices chosen, and these are very much at the discretion of particular analysts. The "equity risk premium" becomes a fancy phrase to dress up unscientific hunches. The main value of introducing the equity risk premium into the discussion is that it serves as a reminder about the importance of savers' risk preferences. Equities are undoubtedly characterised by greater volatility in their nominal value - and, hence, by greater difficulty in forecasting that value in future value - than bonds. It follows that their expected long-run return has generally to be higher than that on bonds. (A very important caveat to the usual rule is explained in the sentences between parantheses below.) So, in % per annum,

Expected long-run rate of return on equities = Expected long-run rate of return on bonds + Equity risk premium (1)

This is an equilibrium relationship which links up asset returns with savers' preferences. (Note that strong evidence can be adduced that - in the very long run - the real return

on equities is more stable than that on bonds. An argument can be made that, for investors with a particularly long time-horizon, bonds have to deliver a higher expected real return than equities. If investors with such time-horizons dominate over investors with shorter time-horizons, very low yields on equities - such as those seen in late 1999 and early 2000 - might be justified. Charitably, this might support the extreme bullishness in the Glassman and Hassett book, *Dow 36,000*, published in September 1999.)

But equity returns come from dividends and, at a further remove, from profits and profit growth

But there is another set of determinants of the long-run return on equities, namely the variables which determine the level and growth rate of the income stream which they represent. In some leading stock markets, including the UK's, a case can be made that over periods of several decades the dividend yield has a tendency to revert to a mean value. If this case is accepted, changes in the yield basis have only temporary effects on total return and in a long-run analysis can be ignored. It follows, again in % per annum, that

Expected long-run rate of return on equities = Initial dividend yield + Expected long-run growth rate of dividends (2)

For the quoted sector of an entire economy there must be some connection between the growth rates of dividends and corporate profits, and - at a further remove - between the growth rates of corporate profits and national output. A reasonable hypothesis, with a fair degree of empirical support, is that in the long run dividends and output increase at roughly the same rate. The implication, once more in % per annum, is that

Expected long-run rate of return on equities = Initial dividend yield + Expected long-run growth rate of national output (3)

In general equilibrium both savers'preferences and economic determinants of income must be included

This is an equilibrium relationship between asset returns and the flow of output attributable to shareholders, which must of course have some connection with national output (and indeed global output for companies with operations in many countries). (1) and (3) can be combined, to derive a statement which says how investors' asset preferences relate to the economic determinants of the income flows on the bonds and equities they hold. The statement combines the two partial equilibrium conditions and might be said to describe a "general equilibrium in equity markets". Again in % per annum, this statement is

Expected long-run rate of return on bonds + Equity risk premium = Initial equity dividend yield + Expected growth rate of national output (4)

Long-run real return on (long-dated, safe) bonds has been 3% a year

What can be said about each of these terms? The expected nominal rate of return on a conventional government bond - such as a UK gilt - over a given time-horizon is simply equal to the gross redemption yield. Similarly, the expected real rate of return on an index-linked government bond is given by the inflation-adjusted gross redemption yield. In most industrial economies before the inflation of the late 20th century the long-run real return on bonds was 3%, while in the last 20 years - when the issue of index-linked debt by governments has become quite common - the real return has also been 3% on average. The equity risk premium reflects investors' aversion to return

volatility and is psychologically determined. The assumption of a 2%-a-year equity risk premium was adopted in one well-known actuarial model and may be borrowed here. ([A.D. Wilkie 'The risk premium on ordinary shares' *B.A.J.* (1) pp. 251-330.] To look at the excess of equity over bond returns in various past periods is a misunderstanding, since it assumes that at the start of such periods investors knew what equity and bond returns would be during them. They knew no such thing.)

With 2% a year risk premium, equity returns must be 5% a year in real terms

So the left-hand side of the general equilibrium equation can be taken as saying that - "in normal circumstances", "in the historical long run" or in some such other phrase - savers' risk preferences are satisfied when the expected real return on equities is 5% a year. If the LHS of the general equilibrium equation has a given value, it follows that the lower is one of the terms of the right-hand side of the equation, the higher must be the other term. In other words, the lower is the expected long-run growth rate of output, the higher must be the initial yield on equities.

This may appear inconsistent with the idea that equity markets are characterised by mean reversion in the dividend yield. But it needs to be emphasized that the equation describes a long-run equilibrium; it does not say anything particular about the transition from one long-run equilibrium path to another. The apparent tendency of the UK dividend yield to revert to a long-run mean value of 4% - 5% may be related to the remarkable stability of the growth rate of UK output, which seems to have been 2% - 2 1/2% a year since the start of the Industrial Revolution in the late 18th century. Few other societies have enjoyed stability of this kind. Even the UK's European neighbours - which are in so many respects very similar societies - have had greater instability in their trend growth rates. Most obviously, the economies of Germany, France and Italy grew far more rapidly than the UK's in the 25 years after the Second World War, but have since moved forward at much the same rate. What about the future? It is here that Europe's demographics become so important. A strong case can be made that the age-ing of Europe's population in coming decades will be accompanied by declines in the population of working age, falling employment and very low output growth. The ominous logic of the market valuation principles outlined so far is that European equities need to move to a higher yield basis to compensate for the deterioration in growth prospects.

Europe's demographics threaten lower long-run growth rate, implying that equities should be on higher yield basis

Low future output growth in Europe partly due to deceleration in productivity growth

The first item of evidence in this pessimistic assessment of European growth prospects is a clear decline in productivity growth over the last 30 years. The chart on p. 8 shows the annual growth rate in output per head in the OECD, the USA, Japan and Europe in each of the last three decades. Apart from the USA, the pattern was for productivity growth to weaken. In the European case the fall was from almost 3% a year in the 1970s to little more than 1% a year in the 1990s.

So far low productivity growth offset by continued employment growth,

Fortunately, the growth of European output has been well ahead of the growth of productivity both in recent decades and in the last few years, because employment has continued to rise. The chart on p. 10 shows that between 1982 and 1999 the gross domestic product of "the EU 15" went up by over 2 1/4% a year, whereas GDP per person employed went up by under 1 1/2% a year. By implication, employment rose typically by about 3/4% a year, despite the alleged rigidity of Europe's labour markets. But the sustainability of employment growth would have to be doubted, even if the outlook were for a rise in the population of working age in coming decades. The chart

identifies one key problem, with a potentially controversial message for public policy. It shows that in the four large European economies (Germany, the UK, France and Italy) women accounted for all of the employment growth in the 1982 - 99 period. Male employment fell fractionally, but female employment climbed from under 35m. to about 43m. (i.e., by almost a quarter). Without the jump in female employment, the output growth in these four economies - and so, more or less, of the EU as a whole - would have been about the same as that of productivity. It would therefore have been little more than 1 1/2% a year.

although this has been entirely by women

Falling male participation in labour force in conjunction with rising female participation

The charts on pp. 12 - 13 throw more light on changing employment practices. The chart on p. 12 shows that the proportion of working-age men actually in employment has been on a downward trend in Europe since the 1960s. By contrast, in Japan and (more debatably) the USA the proportion of working-age men in jobs has not changed much in the last three decades. The slide in male participation in Europe may be related to increased employment taxes to cover the cost of social security, although this is a matter of dispute. At any rate, such taxes have not discouraged an ever-increasing proportion of employment-age women from finding work. Even in Italy the proportion of working-age women in employment increased from just over 30% in the late 1960s to 40% at the end of the century. The proportion in Japan and other European countries was much higher, at between 55% and 65%, while in the USA it was 70%.

But rise in female participation cannot continue indefinitely,

The awkward question for public policy here is whether the rise in female participation can be maintained in the next few decades. If the proportion of working-age women in employment cannot rise beyond the 55% - 70% band, most of the leading industrial economies cannot expect any further output boost from this source. (Italy appears to be an exception.) On the neutral assumption that male participation now stabilizes and that female participation stays unchanged at its present high plateau, employment growth will be equal to the demographically-determined growth of the population of working age. Further, if the population of working age were to be unchanged, output growth would approximate to productivity growth. If output per head were able to advance by only 1% a year (as in the 1990s), that would signal a trend growth of national output also of only 1% a year.

So output growth will move closer to that of productivity,

or might even fall beneath that of productivity because population decline and age-ing will reduce employment

The prospect, over an extended period, of a mere 1%-a-year growth in most European countries' national output is unwelcome, but that is not the end of the bad news. In practice the demographic influences on growth will not be neutral. The chart on p. 14, which borrows from work by the World Bank, projects that the population of working age will be falling relative to total population over the next 30 years. This fall is hardly surprising, given that the age-ing of the population must of course imply an increase in the ratio of pensioners to the number of people still of working age. For some countries (notably Germany and Italy between 2010 and 2030) the outlook is particularly bleak. The working-age population, and probably employment, are forecast to drop by 1/2% - 1% a year. The chart on p. 15 gives United Nations' estimates of total population for the four largest European states until 2050. The German and Italian populations are expected to be declining quite steeply in the second quarter of the century, while the British and French are virtually static. (Note that all these estimates depend on assumptions about fertility and mortality, and become hypothetical in later decades. The World Bank's pessimism on Germany in the early 1990s has been partly superseded by subsequent heavy immigration. On 15th November the UK Government

Actuary's Department published a projection that in 2025 the UK's population would be 65m., about four milion more than envisaged by the United Nations.)

Possibility of output growth of only 1/2% a year needs to be considered

At any rate, a trend is a trend until it stops. The chart on p. 9 reinforces the message of p. 8, that European productivity growth has been in decline for the best part of 30 years. It would therefore be unwise to rely on a figure above 1%-a-year in the next few decades. (The 1%-a-year figure is not a forecast, but a reasonable working assumption given the facts.) If employment were to contract, on average, by 1/2% a year in Europe over the 40 years from 2010, the growth rate of national output becomes a meagre 1/2% a year. There may even be quite long periods - lasting five, ten or even 20 years - when national output in a major European country fails to expand.

and there could even be periods when output falls in some nations (e.g., Italy)

The chart on p. 16 combines the World Bank's demographic projections with the assumptions, first, that employment (E) is a stable proportion of the population of working age (W) and, secondly, that output (O) per employed person grows in the 30 years to 2030 at the same rate as in the late 1990s. Neither of the assumptions is silly, while the World Bank's projections are considered and authoritative. The conclusion is that - over the next three decades - output per head of population ("living standards") rises by about 1% a year in the UK and France, by a tiny 1/2% a year in Germany and by almost nothing in Italy. Further, were the assumed trends in productivity and participation to persist, and were the working-age populations of Germany and Italy to behave in the manner projected on p. 14, there is a distinct possibility that in the second quarter of the 21st century Germany's national output would be static and Italy's would be falling.

This assessment may be quite wrong, but it is a reasonable extrapolation of actual trends,

The statements in the last two paragraphs might be dismissed as guesses. But all statements about the next few decades are guesses to some extent, and in the real world investors and businessmen have to place their bets despite the uncertainties. A fair summary is that trends in demographics, productivity growth and labour force participation argue that the underlying growth rate of European output in the early decades of the 21st century is unlikely to be much above 1% a year. Demographics are not wholly to blame for the prospective stagnation of the European economy, but they undoubtedly make it worse.

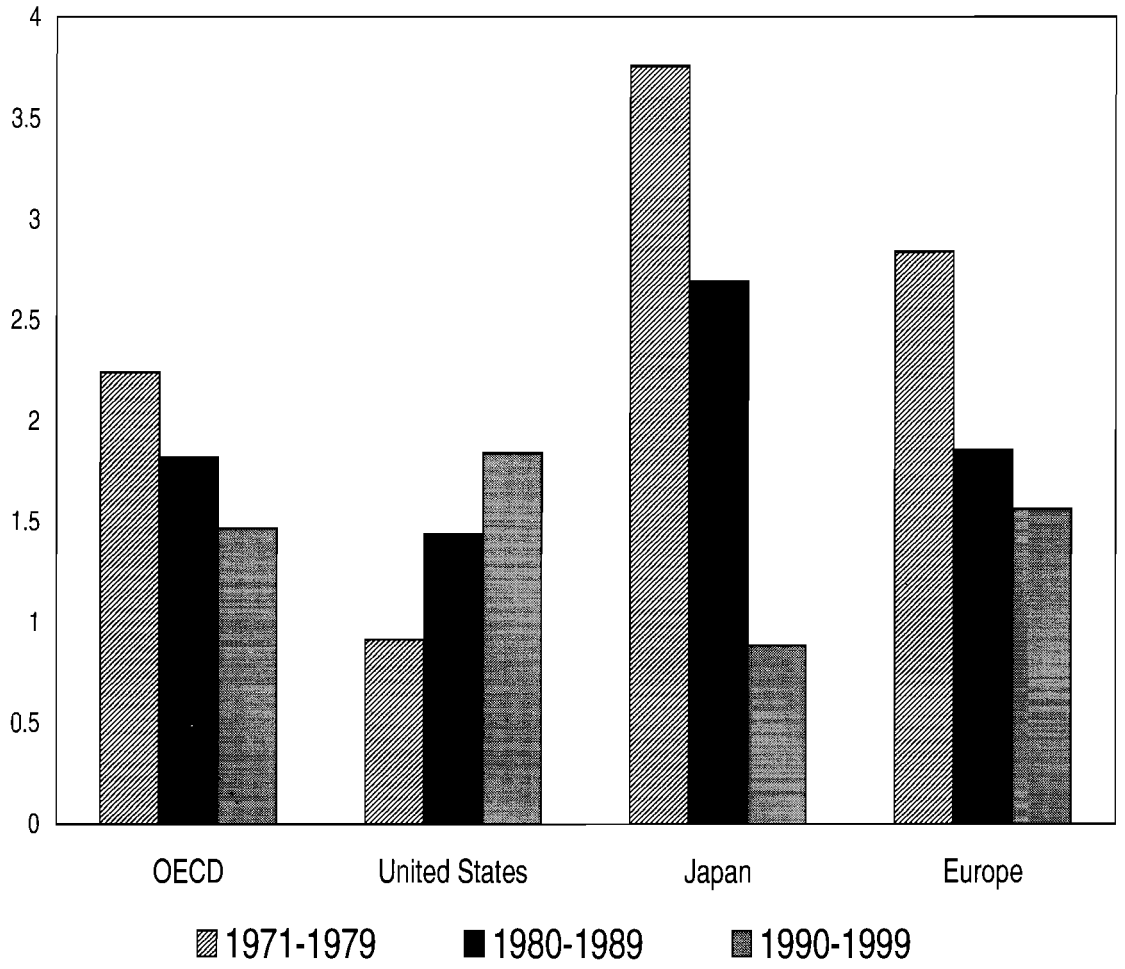
and the implications of the demographics for equity returns are grim

What does this mean for equity markets? It was suggested that - given their risk preferences - savers need an expected 5% real return from equities to justify holding them rather than government bonds. Equilibrium in capital markets requires that savers' risk-and-return preferences be matched up with the ability of assets to generate actual returns. In terms of the equation, the expected real return must be equal to the initial dividend yield plus the expected growth rate of Europe's economies. If the long-run growth rate of European output is only 1% a year, the initial dividend yield has to be 4%. At the time of writing (29th November), the dividend yield on the German stock market (using the FAZ Aktien index) is 2.1%, while on the French (SBF 250) and Italian (BCI) stock markets it is 2.7 and 2.8% respectively. Although European equity markets are well below their peaks in late 1999 and early 2000, the conclusion has to be that they remain rather expensive. Further, the unsatisfactory outlook for growth and equity returns is strongly influenced by Europe's demographic fragility. It is simply not true that the age-ing of the population is good for equity markets.

Slowdown in productivity growth

European growth halved since 1970s

Chart shows the % p.a. increase in GDP per person employed for the periods shown.



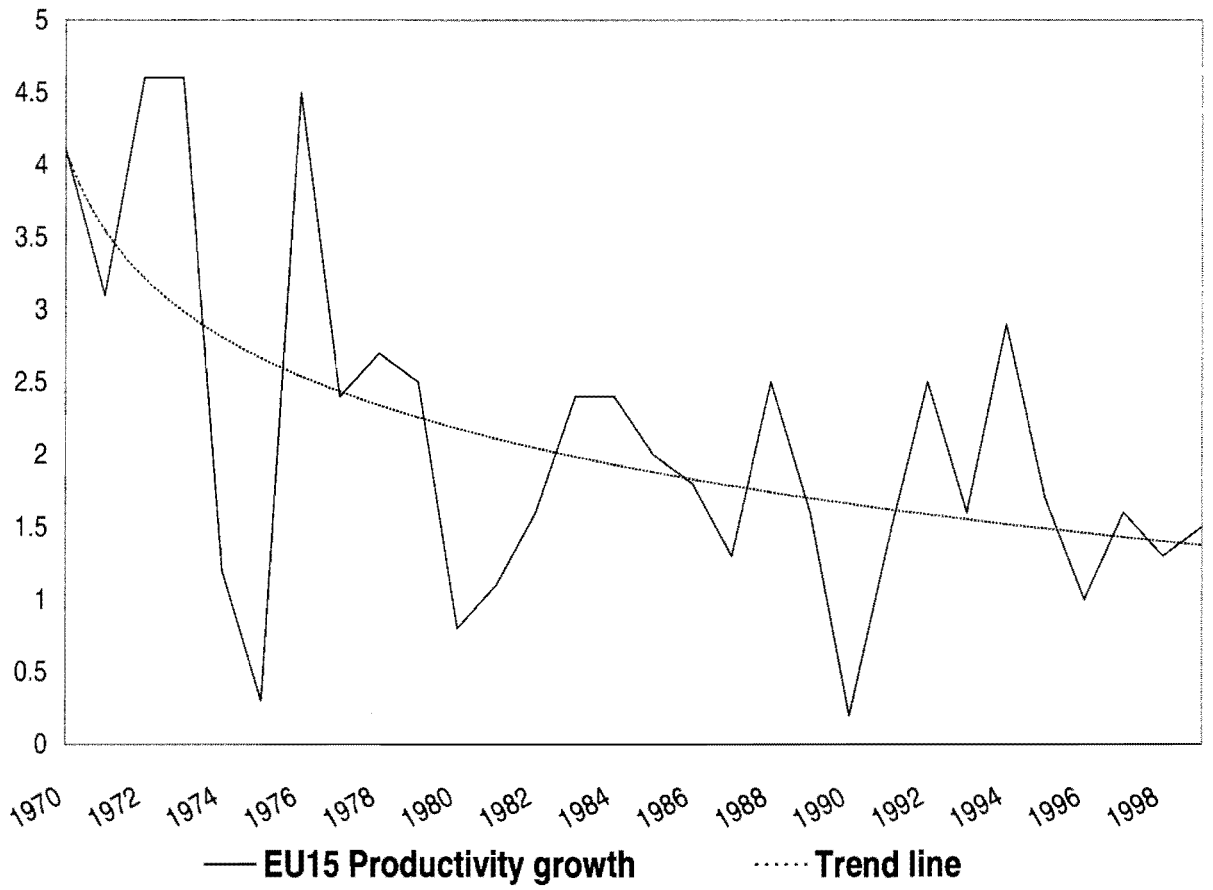
Source: OECD

Note that 'Europe' refers to the EU15 countries.

Output per person employed rose by slightly more than 1% a year in the 1990s, less than the figure of almost 3% a year in the 1970s and dramatically lower than the 5% - 6% a year numbers seen in the 1950s and 1960s. The slowdown is the more disappointing when set in an international context. In the 45 years to 1990 productivity growth was consistently higher in Europe than in the USA, but in the last ten years Europe has fallen behind. (Note that its relatively poor performance may have been overstated by the USA's approach to output measurement, which has been alleged to exaggerate growth in information technology.) High taxation and over-regulation may be largely responsible for Europe's recent failures, but this diagnosis is controversial. According to Madison in his recently-published *The World Economy: a Millennial Perspective*, GDP per hour worked in 12 large European economies rose from 44% of the USA's level in 1950 to 83% of it in 1998. Europe still has not caught up.

Levelling out at 1% a year?

Chart shows the % change in productivity for the EU15 countries, from 1970 to 1999.



Source: OECD

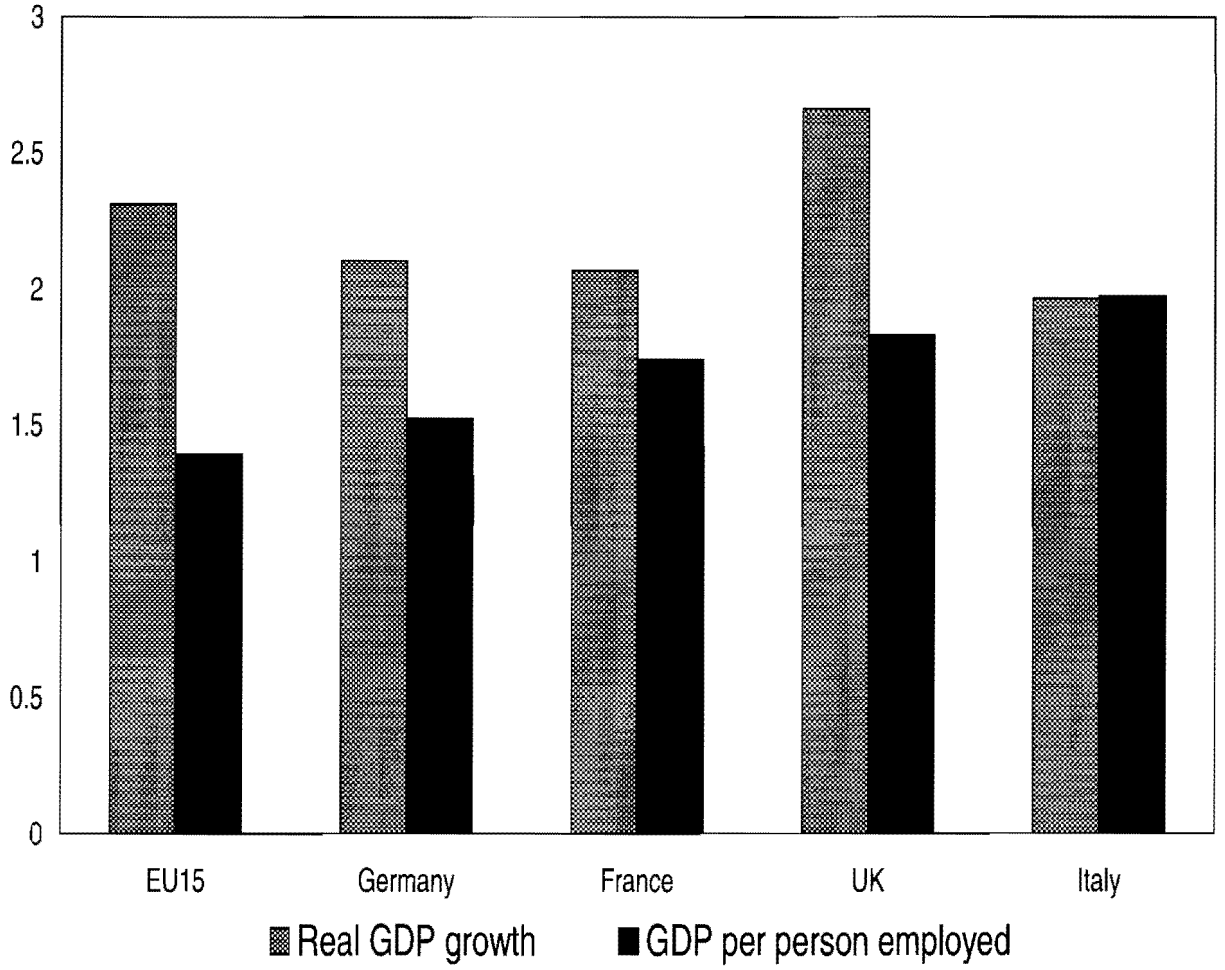
Note that the change in productivity in 1991 is assumed to be the average of other years in the 1990s. The published figure (of -4.4%) reflects German re-unifiaction and is misleading.

The trend line has been fitted using a logarithmic function, in the belief that the deceleration in productivity growth has not proceeded at a steady absolute rate. (It seems to have been more pronounced in the 1970s than recently.) At any rate, the trend line seems to level off at about 1% a year. This may seem poor, but - by very long-run historical standards - it would not be unusual. Madison's *The World Economy* estimates the growth of world GDP per capita as 1.21% a year between 1820 and 1998. The figure for Western Europe alone is put at 1.51%. A figure of 1%-a-year growth leads to a virtual trebling of productivity over a century, whereas 2%-a-year growth delivers a seven-fold increase. The real trouble stems from the interaction between this low rate of productivity advance and a declining workforce, as European employment has not fallen over extended periods in modern times. (The last two centuries have differed from their predecessors not only in the speed of productivity growth, but also in the persistence of rather high population growth.)

Output growth ahead of productivity

But still not much above 2% a year since early 1980s

Chart shows the % p.a. increases for the period 1982 - 1999.



Source: OECD

Productivity growth in all four largest European countries was under 2% a year in the 1982 - 99 period. Unhappily, in the Eurozone itself it was also slower in the 1990s than in the 1980s. According to Table 5.4 in the latest issue of the European Central Bank's *Monthly Bulletin*, labour productivity in the Eurozone increased on average by 1.2% a year in the five years 1996 - 2000 inclusive, while performance so far suggests that it will probably be static in 2001. A "politically incorrect" and perhaps rather controversial case can be made that the changed gender composition of the workforce - with women representing a higher share of total employment (see pp. 11 - 13) - has contributed to the fall in productivity growth. Because women have lower incomes and output per head than men, their increased importance in employment would lower output per head. (Note that Italy - which has low female participation - had a relatively good productivity record.) UK productivity growth was also slower in the 1990s than in the 1980s, but now appears to be higher than the European average.

Employment growth entirely due to women

Chart shows the employment of men and women in '000s, from 1979 to 2000.

Source: OECD

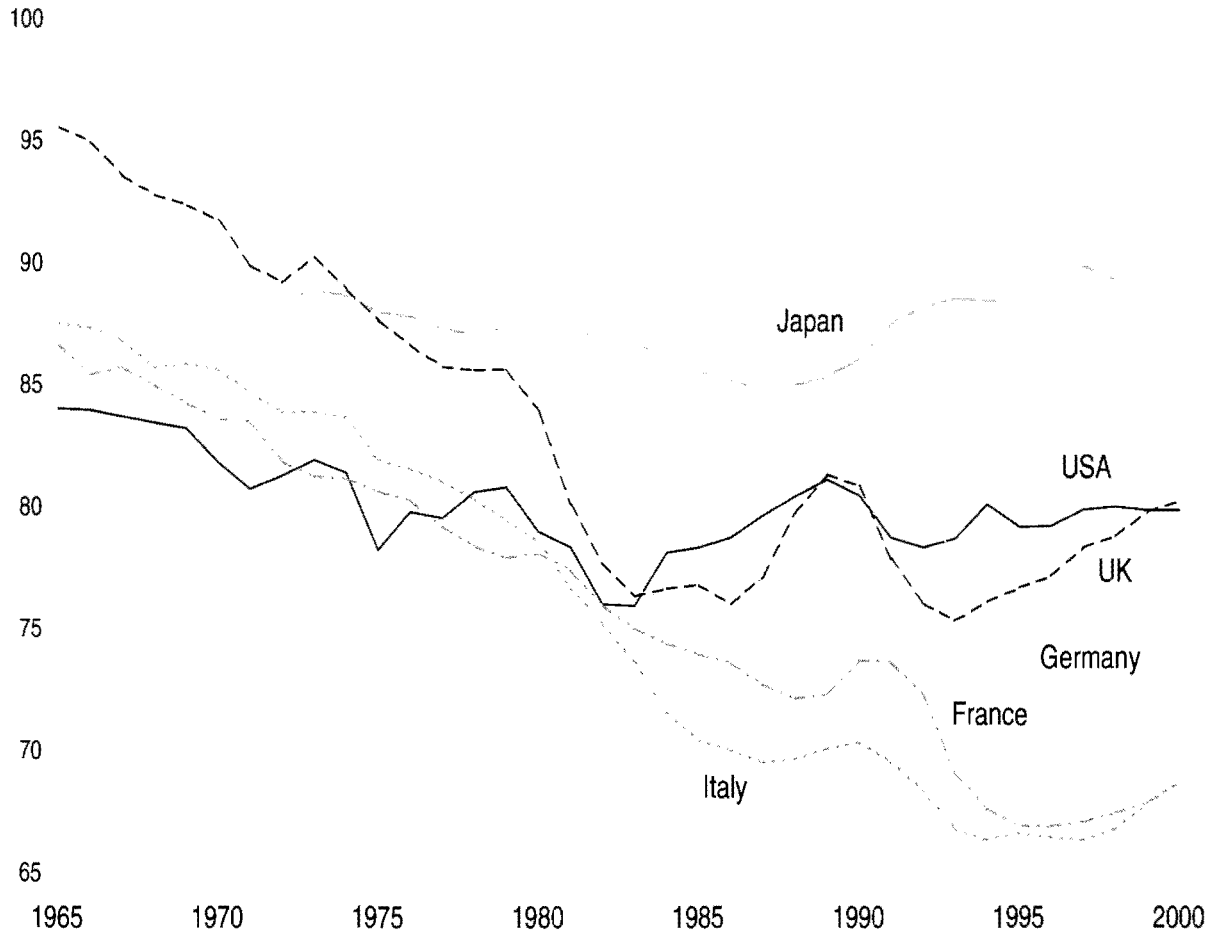
Note that the 'major European countries' are France, Germany, Italy and the UK.
Note also that the employment numbers are adjusted for the effects of German re-unification.

The rise in female employment since the 1960s appears to be common to all the major industrial countries, and is evidently related to wider social trends such as the spread of contraception, the later age of conception and, at least arguably, the decline in the number of children per woman. (In some European societies women now have on average under 1 1/4 children, compared with the 2.1 figure required for replacement.) The key message from the chart is that - without the rise in female employment in the last 20 years - employment would have contracted slightly in the four largest European countries. (Note the adjustment for German re-unification mentioned in the box above.) Assuming that the rise in female employment is a once-for-all event, the question becomes, "where will these nations get their extra workers in future?" Further, if employment were to stabilise at current levels, output growth would be the same as productivity growth, which - as demonstrated by the comment on p. 10 - was a mere 1% a year in the late 1990s in the Eurozone.

Contrasting employment patterns

Adverse trends in employment and participation for men

Chart shows % ratio of employed population of working age to total population of working age, for men alone.

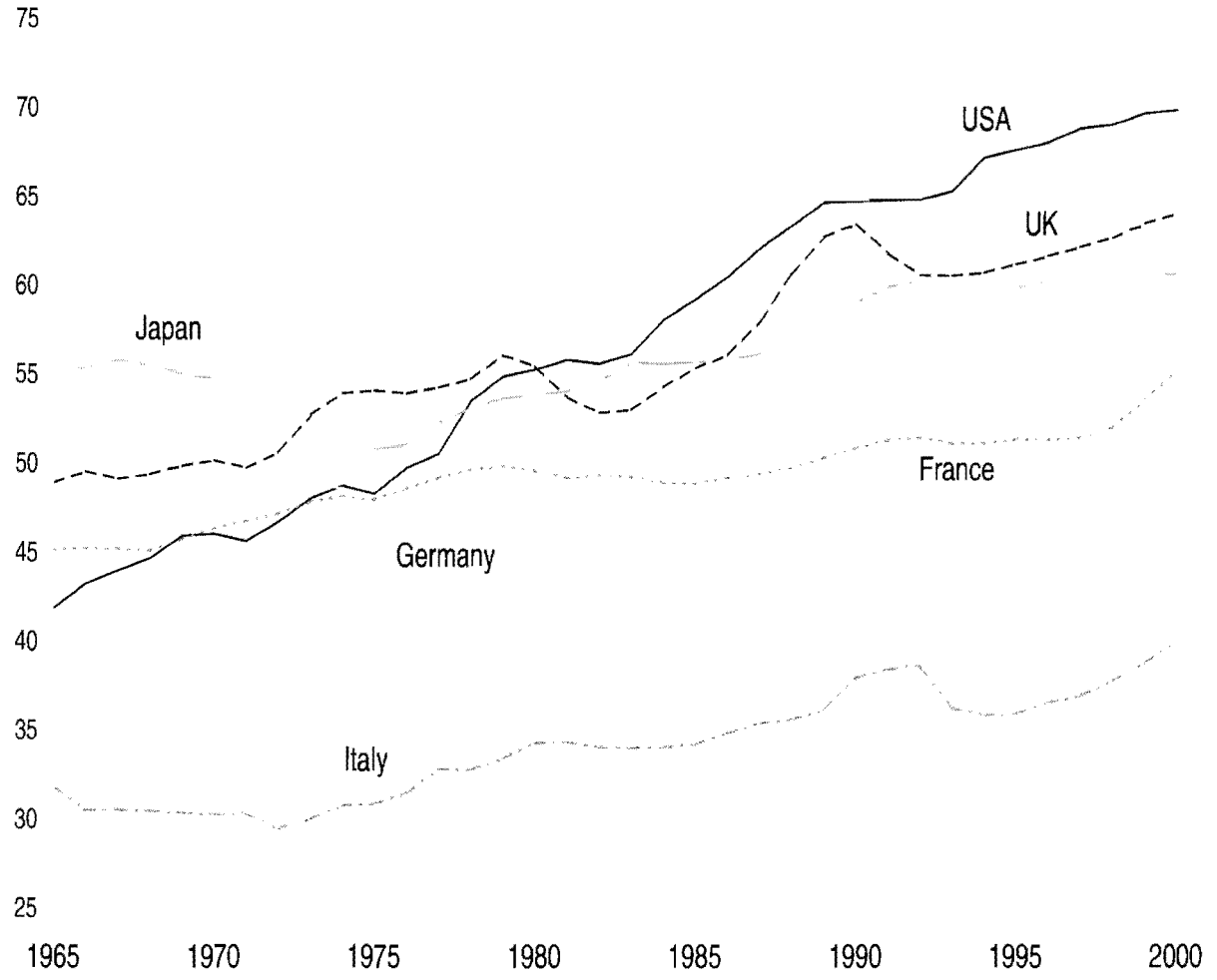


Source: OECD

The chart here ought to alarm Europe's policy-makers. In the mid-1960s the "male employment ratio" (the number of men in work as a ratio of the number of men of working age) was - more or less - between 85% and 95% in all of the six largest industrial economies. Developments since then put these countries into three groups. First, Japan is by itself, with a virtually unchanged and high employment ratio. Secondly, the USA, Germany and the UK had sharp declines in the employment ratio between the mid-1960s and the early 1980s, but the ratio has subsequently stabilised. (Indeed, in the case of the USA and perhaps the UK, the ratio may have risen.) Last come France and Italy, where the employment ratio has plummeted by about 20% to under 70%. The explanations for these contrasting trends include different levels of social security tax, different systems of pension provision and different intensities of trade union bargaining power. The slight rise in the employment ratio in France and Italy in the late 1990s was cyclical, and does not mean their problems are over.

But positive trends for women

Chart shows % ratio of employed population of working age to total population of working age, for women alone.



Source: OECD

Whereas the employment ratio for men has mostly been falling in the industrial world since the mid-1960s, the ratio for women has been rising. But - as the chart shows - this generalisation hides marked differences between countries. The rise in the female employment ratio in Germany, the UK, France and Italy was crucial in explaining the increase in female employment, as the number of women of working age did not change radically. The comment on p. 11 showed, in turn, that extra female employment in these countries accounted for all of the increase in total employment. But Europe is not the pacesetter here. Female labour force participation patterns have changed even more in USA than in the big European economies. Whereas in 1970 male workers outnumbered female workers by about two to one, last year they outnumbered female workers by little more than 15%. If female participation had remained as it was in 1970, the USA's national output last year would have been about 15% lower.

Demographics to hit growth again

Working-age population to fall heavily?

Chart shows % ratio of population of working age to total population.

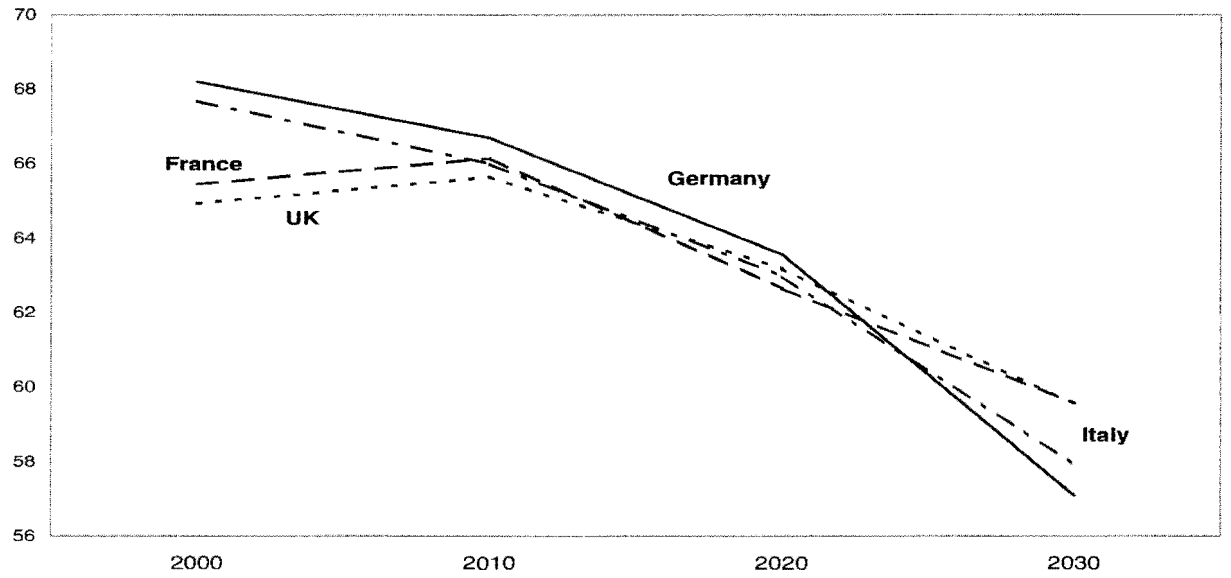


Table shows % p.a. change in population of working age to total population.

	Germany	Italy	United Kingdom	France
2000-2010	-0.2	-0.3	0.1	0.1
2010-2020	-0.5	-0.5	-0.4	-0.5
2020-2030	-1.1	-0.8	-0.6	-0.5

Source: World Bank

The chart shows the World Bank's projection of the ratio of the working-age population to the total population in the four large European economies over the next 30 years. Of course, the numbers depend on assumptions about, for example, birth and death rates, and the net migration rate. (These can be checked in the World Bank's website on www.devdata.worldbank.org.) But they are not particularly controversial. Eurostat - which is a European Union institution - compiles projections made by each of the European nations and these can be compared with the World Bank's. Eurostat's estimate of Germany's population in the 20 - 64 age group in 2020 is 48.4m, only slightly ahead of the World Bank's 47.7m. One key point is that the UK and France are relatively well placed, and in fact neither country faces a serious decline in the population of working age. But Germany's position - particularly in the 2020s - is disturbing. By 2030 its working-age population could be 15% - 20% lower than in 2000.

Total population in the second quarter of 21st century

Chart shows the United Nations population projections for the four major European countries.

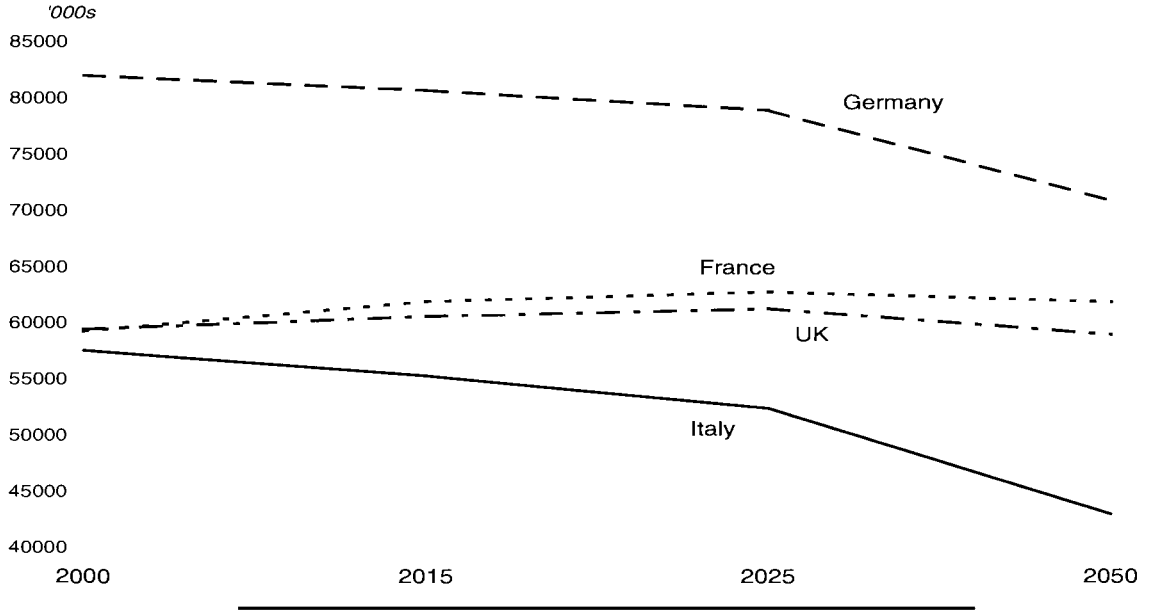


Table shows the % p.a. change in total population.

	France	Germany	Italy	UK
2000 - 2015	0.3	-0.1	-0.3	0.1
2015 - 2025	0.1	-0.2	-0.5	0.1
2025 - 2050	-0.1	-0.4	-0.8	-0.2

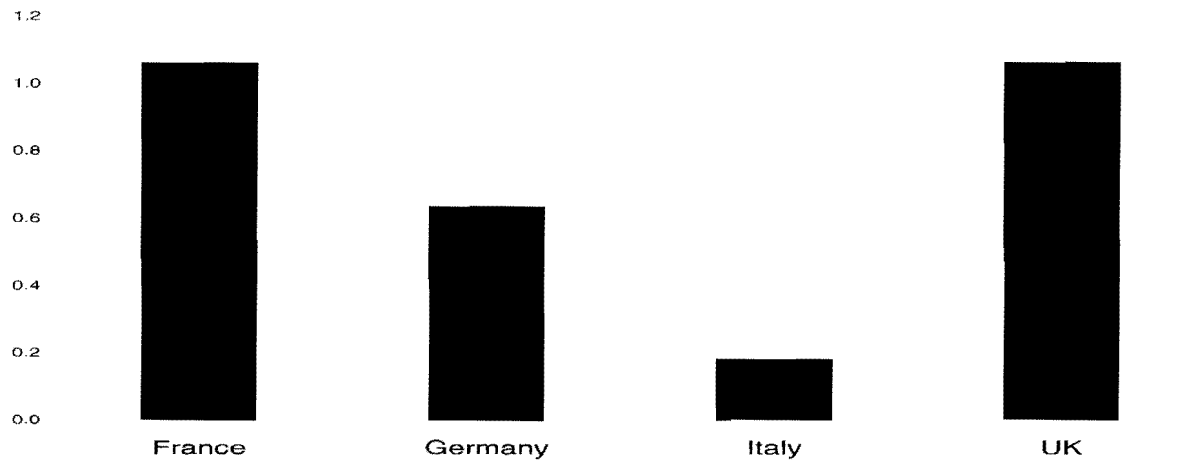
Source: United Nations

The projections here come from the United Nations, which uses different assumptions from the World Bank and Eurostat. It is the combination of a lower overall population and a fall in the proportion of the working-age population to the total which leads to big falls in the working-age population. Unless the employment ratio rises sharply, Germany and Italy will suffer declines in employment over the next 30 years. According to the World Bank, Germany's population of working age will go down from 51.7m. in 2000 to 50.1m. in 2010 and 41.0m. in 2030. The fall from 2010 to 2030 would run at 1.0% a year. The charts on pp. 8 - 9 argued that productivity growth in the European Union was levelling out at about 1% a year. *If German productivity growth between 2010 and 2030 were in line with this figure (i.e., 1% a year), and if employment were to decline at the same rate as the population of working age, Germany's GDP would stagnate for 20 years.* The obvious conjecture has to be that public policy will change to achieve a better outcome.

Living standards to stagnate?

And could national output fall?

Chart shows the % p.a. change in output per head of population from 2000 to 2030.



	W/P	E/W	O/E	O/P, "Living standards"
France	-0.3	0.0	1.4	1.1
Germany	-0.6	0.0	1.2	0.6
Italy	-0.5	0.0	0.7	0.2
UK	-0.3	0.0	1.3	1.1

Assumptions (see text for explanation)

1. Demographics (W/P) based on World Bank projections.

2. Employment ratio (E/W) will be unchanged for the period 2000 - 2030.

3. Output per person employed (O/E) follows 1995 - 1999 trends.

This chart follows the pattern of p. 12 of the December 1997 issue of Lombard Street Research's *Monthly Economic Review*. The December 1997 issue focussed on the threat to economic growth from declining labour force participation, which had been a marked feature of some industrial economies - notably France and Italy - since the 1960s. The chart here assumes that the trend in participation is better in future, with the employment ratio constant. Even so, the combination of adverse demographics (i.e., the age-ing of the population) and low productivity growth leads to virtual stagnation in living standards in Germany and Italy over a 30-year period. The employment ratio rose in Europe in the late 1990s, but this may have been largely cyclical. If the employment ratio were to fall in France and Italy over the next 30 years as it had been doing in the 1980s and early 1990s (i.e., by 0.6% a year), living standards would creep upwards by 1/2% a year in France and would drop in Italy. Public policy must surely change.