



BANK OF ENGLAND

# Speech

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## **Global Demographic Change: Some Implications for Central Banks**

Speech given by

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*“I am an old man and have known a great many troubles,  
but most of them never happened” (Mark Twain)*

My assignment today is to discuss the implications of demographic change for central bankers, particularly in those countries where the population is ageing. But before doing that, it is helpful to recall what we have learned over the last couple of days about the possible macroeconomic effects of an older population.

### **Macroeconomic effects of ageing**

First, there are at least three distinct demographic shocks at work: reduced fertility rates; increased longevity, partly associated with medical advances; and a one-off temporary increase in fertility after the end of World War II. The effects of these shocks differ, as do their importance across countries. The advanced economies and, later, China are likely to be most affected by population ageing in the coming decades, while some developing countries can in contrast expect to see a rising share of the working-age population. The paper yesterday by David Bloom and David Canning highlighted the opportunities provided to the latter by this “demographic dividend”.

As far as the consequences of ageing go, several of the contributions at the Symposium suggested that those countries undergoing ageing should expect a fall in the growth rate of per capita GDP and changes in both saving and investment. Aggregate saving is likely to rise along the transition path as working households increase their provision for a longer expected retirement. But as these households move through into retirement and begin to dissave, so aggregate saving should drop back. Whether the aggregate saving ratio will be lower or higher in the long run is a moot point. Standard life-cycle theory suggests it should be lower, as the retired dissavers will now be more numerous. However, microeconomic evidence that the elderly do not dissave as much as the theory says they should suggests that aggregate saving could rise. Macroeconomic studies, on the other hand, usually find that saving rates are inversely related to dependency ratios and that the conventional wisdom is valid. Finally, the capital intensity of production should rise and the equilibrium real rate of return should fall.

The greying of the population could also affect the supply of labour and the participation rate. Increased longevity should lead both to more time spent in

retirement and to more time spent in work as people increase their saving in order to maintain their consumption in old age. And an older workforce should also be more experienced, so raising average skill levels.

The magnitudes of these various effects will depend on the degree of openness, on the extent to which the demographic shocks are internationally correlated and finally on the policy response by governments. With a high degree of openness to trade in goods and capital, the common component of the changes in savings and investment behaviour will affect the global real rate of return and the capital intensity of production, while the asymmetric components will show up in movements in current account balances and real exchange rates. In addition, the relative scarcity of workers in the countries with ageing populations should drive up real wages, prompting increased inward migration from countries where labour is more abundant. These various themes were explored in the contributions from Ralph Bryant and John Helliwell.

As far as policy goes, countries that rely heavily on unfunded state pension schemes as a number of European states still do, will be forced either to lower pension benefits or else raise taxes on the working population. The natural consequence of lower state pensions will be greater reliance on private provision. In that regard, though, it is worth noting that some funded private pension schemes have already run into difficulty because of unanticipated increases in longevity. On the other hand if taxes are raised to preserve the value of pensions, then there may be adverse effects on labour supply and entrepreneurial activity. Finally government policy towards retirement dates will be key, as an obvious response to increased longevity is to increase the length of the average working life. Given the required size of adjustment, action along a variety of dimensions seems the most likely eventual outcome.

### **Implications for central banks: demography as a source of shocks**

How does all this impinge on central banks? First, demographic change constitutes a macroeconomic shock. But the “slow burn” nature of demographic change suggests that the immediate implications for monetary policy could be modest. Sharp changes in savings ratios seem unlikely. Rather they are likely to drift up or down over many years or even decades. The same is true of developments in current accounts, real exchange rates, migration and labour force participation. So an ageing population does

not, on the face of it, seem to be the sort of development that should generate the sharp shifts in demand or supply that would require a countervailing monetary response.

But though the demographics may change slowly, it is possible that income expectations or the institutional environment could change more abruptly. Dealing with the economic consequences of an ageing population is one of the trickier economic problems facing governments, particularly in those countries with generous unfunded pension schemes. Given the “slow burn” nature of the problem, it may be tempting to postpone the more sensitive decisions. Decisive action may only then be triggered as public debt spirals and participants in the financial markets start worrying about the possibility of default. Abrupt movements in asset prices and sharp movements in saving behaviour in response to actual or expected policy changes could be the result.

Even where there is less reliance on state provision, there could be quite sharp changes in expectations and the environment. Thus, in the United Kingdom, increased longevity and falls in equity prices have led to the closure of many defined benefit company pension schemes, with the attendant transfer of risk from employer to employee. Part of the response to that has been increased investment in real estate and an expansion of “buy-to-let” as a way of providing for retirement, thus adding to the recent upward pressure on house prices.

### **Natural rates**

Second, demographic developments will affect the reference points central bankers sometimes employ to judge the stance of monetary policy: the natural rate of interest; and the natural rate of unemployment. Though neither can be pinned down with any precision, they can nevertheless be useful as heuristic benchmarks.

The analysis we have heard at this Symposium points in the direction of a lower natural real rate of interest, both along the transition path to an older population and in the steady state. But is the impact likely to be quantitatively significant? Simulations calibrated to data for the European Union by David Miles (1999) suggest a decline of the order of half a percentage point over thirty years. That is not insignificant, though we have seen much larger movements in the long-run real interest rates implied by

indexed bonds over the last decade. And the results that Jim Poterba discussed yesterday suggest that in the United States there is little evidence of a strong statistical link between demographic variables and the rate of return. Finally, it is worth remembering that other factors, such as the acceleration in productivity in the United States, will be working in the other direction.

That the natural rate of unemployment may be affected is rather less obvious. However, the ageing of the population means that the rate of inflow into the working population and the exit rate into retirement will in the long run<sup>1</sup> both be lower. The former tends to lower the natural rate as there will be relatively fewer unemployed young looking for jobs, whereas the latter raises it as there are fewer vacancies arising out of the natural wastage associated with retirement. In standard matching models (see e.g. Christopher Pissarides, 2000), the first effect will be the dominant one, so the natural rate should fall. In addition, the changing age structure of the working population is likely to affect average quit rates. For instance, we know that average job duration tends to be shorter for younger workers than older workers. If younger workers constitute a smaller share of the workforce, then the quit rate and the natural rate of unemployment should both be lower. But whether these effects are quantitatively significant is another matter altogether.

### **The transmission mechanism: the impact of interest rates on demand**

A third route whereby a greyer population may impact on central banks is through its impact on the transmission mechanism, particularly in the way consumer spending is affected by changes in interest rates. In principle, interest rates affect consumer spending through three channels: wealth effects; intertemporal substitution; and the interaction of cash flow and credit constraints. Typically the old will be richer in financial and real capital, while the young are richer in human capital. Moreover, the marginal propensity to consume out of wealth should be greater for the former than the latter. *Per contra*, for the young intertemporal substitution may be a relatively more important channel and they are also more likely to be subject to credit constraints as they are less likely to own assets that can be used as collateral.

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<sup>1</sup> Although the exit rate will rise as the baby-boom cohort reaches retirement age.

So a greying of the population means that the wealth channel is likely to become relatively more important compared to the other two channels. Moreover, increased longevity and pension reform should lead the elderly to carry higher levels of financial wealth into retirement than before, further boosting the importance of wealth effects in the transmission mechanism. But whether that leads to an overall rise or fall in the monetary policy multiplier is less obvious. David Miles (2002) reports simulations with an overlapping-generations model suggesting the multiplier should indeed rise. But in the United Kingdom, with its high levels of home ownership financed through variable rate borrowing, the impact of higher interest rates on the cash flow of constrained borrowers and on the value of housing collateral may be a particularly important part of the transmission mechanism. In that case the monetary policy multiplier could well fall.

### **The transmission mechanism: the Phillips curve**

A greyer population could also affect the transmission mechanism through its impact on the Phillips curve. As well as having the effects on the labour force and the natural rate of unemployment mentioned earlier, the greying of the population could in principle also flatten the short-run Phillips curve. There are two possible mechanisms at work.

The first is that, as already noted, workers may want to work longer in order to provide for an adequate standard of living in retirement, while governments are likely to want to extend working lives to the extent that the state retains some responsibility for supporting the elderly. But a substantial increase in normal retirement dates across the board seems relatively unlikely. Rather governments are likely to combine more modest increases with fiscal inducements to encourage potential retirees to continue working in some form after the normal retirement age. The participation and supply of hours from these workers is likely to be more elastic than those of prime-age workers, leading to an increase in the cyclical responsiveness of overall labour supply and a flatter Phillips curve.

The second mechanism is through migration. As noted, the greying of the population in developed economies may lead to more inward migration. It is reasonable to believe that any such migration will be mainly a steady flow. But to the extent that such migration responds to job availability in the receiving countries, then it will act as a

safety valve when they start overheating. The potential for a country to grow rapidly without significant upward pressure on inflation through the inward migration of labour is graphically illustrated by the experience of the Republic of Ireland over the last fifteen years (in this case a sort of diaspora in reverse as Irish workers on the British mainland and elsewhere returned home).

### **The political economy of inflation**

A fourth impact of ageing on central banks may be through its impact on the constituency for low inflation. Other things equal, increased longevity should lead not only to more retirees but also to higher average wealth holdings. That will be the case *a fortiori* if governments respond by cutting back on state provision of pensions and encourage greater private provision. Moreover, employers in countries like the United Kingdom have been shifting pension arrangements from a defined benefit basis to one of defined contribution. Workers saving for retirement will therefore typically find themselves exposed to more risk than before. In order to hedge some of that risk, they are likely to want to hold a greater fraction of their portfolios in bonds rather than equity and, to the extent that the majority of bonds remain nominally denominated, the constituency for keeping inflation low will be larger.

### **Financial stability**

The fifth dimension of the impact on ageing on central banks relates to their role as guardians of the stability of the financial system. An ageing population, particularly if it is also associated with a move from unfunded to funded pension schemes, implies a higher gross saving rate for the population of working age. Moreover, those funds are likely to be channelled through institutional investors rather than banks, hastening the structural changes that are already taking place in bank-dominated capital markets such as those in some euro-area countries.

The greater scope for diversification and risk-shifting with securitised lending rather than bank-intermediated finance means that in principle this could be a positive development from a financial stability perspective. But against that, it may be harder to trace exactly where some kinds of risk end up. So, at a minimum, central banks will need to develop further their antennae for the surveillance of macro-prudential risks.

Furthermore, increased reliance on personal pension provision will increase the sensitivity of savers to underperformance, whether it results from fraudulent behaviour, the misguided use of funds or just plain bad luck. Financial supervisors should expect to receive heightened criticism for perceived regulatory failings, while central banks can expect to be upbraided for not preventing falls in asset prices.

A final point worth making in connection with financial markets is the potential incompleteness of the markets required to ensure appropriate risk-shifting in the annuities market. Pension providers will seek to match the income from their assets to their liabilities. But with increased longevity, this will be harder to do as there are relatively few very long-dated (50-year) bonds. So a sizeable increase in longevity could expose them to substantial unhedged risk. The consequence of that will be to raise the price of buying an annuity, at least at the normal retirement age, which in turn may have knock-on consequences for saving, etc. While governments could effectively take on this longevity risk by issuing longer-dated debt, that could also lead to volatility in long rates similar to that arising with unfunded state pension schemes.

In concluding my remarks, let me observe that although central banks will need to adapt to the changes brought about by an ageing population, for the most part the really big policy challenges will be for governments to deal with. But I cannot resist ending by observing that there is one quite unambiguous benefit to central banks from increased longevity – it allows them to be run by even older and wiser Chairmen and Governors!



## References

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