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LIVING LONGER IS BAD FOR THE NATION'S WEALTH

A Discussion Meeting

[Held by the Institute of Actuaries, 23 October 2000]

ABSTRACT OF THE DISCUSSION

Mr G. Lishman, O.B.E., (a visitor; Director-General, Age Concern; introducing the subject of the discussion)**:** I have spoken recently at a number of meetings with the Department of Trade and Industry (DTI). These have followed the Foresight Programme in relation to ageing matters. I have said to audiences drawn from Confederation of British Industry (CBI) groups in the nine regions of England that: "demographic change is about competitive advantage"; that people who can understand the economic and social implications of demographic change will include some of the next generation of business millionaires. Some current captains of industry who do not understand those implications may find themselves heading, in an untimely manner, towards the gutter.

Demographic change has profound economic implications. These economic implications are *supply-side* ones, about how we treat older people in the labour market, and, therefore, about how older people in the labour market contribute to the economy as taxpayers and as purchasers. It is also about the different sorts of *demand* which an ageing population will make on the providers of goods and services. The Henley Centre estimates that the proportion of the total amounts of money which are spent by people aged over 55 will increase from under 20% to over 50% over the 20 years from 1995 to 2015. From this, you will appreciate the implications of that range for the owners of EuroDisney, and will appreciate why the people who own the centre of Blackpool are currently coming together, in a new consortium, with a business plan to demolish much of the centre of Blackpool, in order to create an attraction which is aimed at a wholly different market from the current one. That is the change in the demand side.

Also, there are going to be significant changes in the infrastructure that relate to the implications of an ageing population. These are going to be many and varied. Care costs will be part of these, and will include the costs of the different forms of care which will be paid for by different groups of people in very different ways. When I look at the market for care, as a care provider through Age Concern, what I see is a world in which the traditional financial relationship with government bodies is going to change into a very different financial relationship. I see individual consumers, who may be spending their own money or their families' money, but who, also, may be spending state money which is given to them for the purpose of purchasing care, or in which they are at least equal partners with the purchaser in the care that they receive. As we look further down the track, we see long-term care insurance and other forms of care insurance also coming on track.

Therefore, in the three core areas of economics — demand side, supply side and supportive infrastructure — the implications of demographic change are going to be profound. As a society, we need to find ways in which to deal with the changes. Of course, this is viewing ageing as an opportunity rather than as a 'timebomb'. It reflects the reality, which is that, for all of us, ageing is a considerably better option than the only available alternative. The longevity that has been achieved in no more than the past century and a half, in relation to populations rather than to individuals, is one of the greatest achievements of humanity. It creates opportunities, one of which is very much in the area that, in Age Concern, we have called productive ageing. This refers to the different ways in which older people contribute to our society, one of which is work.

The OECD made a study, as part of its ageing programme, which looked at the decisions made about the age of retirement in OECD member states. They found a direct correlation between the actual age at retirement and the real marginal cost of continuing to work. This is hardly surprising, and is a perfectly rational economic calculation. If the failure to accrue benefits for later; if the structure of the benefit system; if the structure of pension schemes; are such that you are, in effect, paying a significant marginal taxation rate on your earnings after a certain point, then you are less likely to continue to work. The country which had the lowest marginal rate, Iceland, also had the highest actual age at retirement. Apart from the odd blip, of which Japan was the most notable, you can chart, with a high level of correlation, the marginal costs of continuing to work and the actual age at retirement.

However, work is only one form of contribution. Others, in the context of productive ageing, are volunteering — an idea that government has taken up recently with the development of the concept of the 'Experience Corps' — and also the contribution to caring. The contribution to caring that elderly spouses, in particular, make to the care of their husbands or wives is a substantial economic factor in the life of our country. If they were not providing that care, or if there were perverse incentives which made them less likely to provide it (as in some countries), then there would be a very significantly increased cost to society for the provision of that care, however allocated. There is also the area, in productive ageing, of learning, and, for instance, the vast increase in the numbers of people who are using information and communications technology.

We need a society which responds to demographic change by looking at enhanced possibilities for productive ageing. That includes within it the principle of age neutrality, which came from the Age Concern sponsored millennium debate at the end of 1999. It says that people should be treated on the basis of the contributions that they can make, rather than on the basis of chronological age. That applies to discrimination in the labour market, but also, more importantly, to discrimination in the field of healthcare.

On the other hand, one of the things that is profoundly worrying is the possibility that the opportunities for productive ageing will go to people who most enjoy work, to those who most control their work, their working environment and other people in their working environment, and that these are likely to be people who are already the most highly paid. The opportunities for continued work for people with, for instance, low levels of disability (back pain being one example) and for people who do not enjoy their work and would like to move on from it, are going to get less, and these people may well become a higher proportion of the population. Proposals for stakeholder pensions do not substantially change that. There is a serious possibility of a significant underclass of older people, as at present, who are those who are most excluded from many of the things which are taken for granted in the enjoyment of normal society. The recent decisions on genetic testing in the insurance industry are likely to swell the ranks of that group of people yet further.

Therefore, the possibility is that increased longevity will make a significant contribution to the lives of some older people, and that these older people will have significant human and social and financial capital which they will be able to invest in their communities and in the wider society. There is a danger, however, that the process of demographic change will also lead to the creation of a significantly increased underclass of people who will be poor.

The Government has talked about what they have called a 'lost generation' in relation to young people. There is a second 'lost generation', which is virtually entirely lost to the possibilities of productive ageing in a wider contribution to society. These are the people who were pushed out of employment, often in their fifties, over the course of the last ten years, and who are now finding it virtually impossible to find any way back into paid employment. The challenge for us is whether that division needs to continue, and whether we are going to have yet another lost generation. If we let this happen, we will contribute significantly to the costs of society as a whole, to the costs of taxpayers, potentially to the costs of people who are insured, but, crucially, we will also be taking very big risks with the social fabric of our society, as we see the real possibility of larger and larger numbers of older people in poverty.

Mr P. Johnson (a visitor; Chief Economist and Director of Analytical Services, Department for Education and Employment; introducing the subject of the discussion)**:** I work now at the Department for Education and Employment, but previously I have worked a great deal on pensions. There are two issues which are immediately obvious about education and employment, and what matters for the future wealth of the nation, given ageing. The first is that there will be fewer children over the next several years, which implies a slightly lower dependency ratio than otherwise. Thus, we will need to take account of that factor as well as that of the increased ageing of the population. Much more important is the issue of employment among people aged 50-plus, to which Mr Lishman referred. Were we to raise participation in work among that group back to the kinds of levels that it was at in the 1970s, then the age dependency ratio, the real one, would increase a lot less quickly than is currently predicted. There are economic changes which will impact on whether that happens or not, some pointing in a positive direction, some pointing in a negative direction.

People will live for longer; and one would expect that that fact would require them to work for longer in order to pay for their pensions. There is also an income effect. People are better off. People might, therefore, work less long. That seems to be at least one of the reasons why people are retiring earlier at the moment.

There is a more general economic effect. If there are more older people and fewer people of working age, then the labour/capital ratio will change in a way that is beneficial to those people who are working. The return to labour will go up if labour is scarce. If the supply goes down, the price will go up. That ought to bring more people back into the labour market. We do not know in which way all these things will go.

What will happen as the population ages? First, there will be more people over pension age, and they will be spending their assets in order to live. If there are fewer people of working age, then there are fewer people who are saving for their old age, so savings rates ought to reduce. It is important to view this, not only in absolute terms, but also in terms relative to the rest of the world. In the United Kingdom, savings rates should reduce as a result of ageing, but, because the U.K. population is ageing significantly less fast than those of many other countries, our ranking, internationally, ought to go up.

It is a similar story on GDP growth. The effect depends on whether savings actually affect productivity growth and GDP growth. It is difficult to find, from the data, a close relationship between savings and GDP growth, partly because the international nature of capital markets means that national saving does not necessarily lead to national investment, and because there are many other reasons why investment and productivity may change. Savings rates are expected to reduce, and capital accumulation to fall. The difference between stocks and flows is important. There will be a high capital stock because so many will be retiring, and flows of new capital will fall for exactly that same reason.

Simple cross-country comparisons do suggest that there is a relationship between the age dependency ratio and GDP growth, as expected. That is that countries with a higher age dependency ratio tend to have lower GDP growth. So, the U.K. is expected to move up the international league tables, because we are ageing less quickly than those in many other countries.

The other piece of economics is that an older population should not imply any kind of collapse in the stock market. It has been suggested that, because so many people will be reaching retirement age, they will be withdrawing their money from the stock market, and, thereby, will be causing some kind of collapse or implosion of the funded system of pensions. That view of the world depends on the whole of the stock market growth over the last 40 years having been little more than a speculative bubble. This is possible, but unlikely. What matters are the returns on capital in the stock market and the fact that there will be a higher amount of capital relative to labour. If there is a higher amount of capital relative to labour, then the return on capital will fall, but not catastrophically. We are looking at a stock market growth of some 0.5% to 1% p.a. less than it otherwise would have been, which is measurable. We are not looking at total collapse.

There are other important micro-economic and intergenerational effects. Who will be the winners and who will be the losers in an ageing population? Nearly always it is those who are sharing the spoils when the big changes happen, rather than the overall level of growth. Small generations and early generations in pension systems tend to do reasonably well in terms of their pension levels. We have seen that early generations in state systems have done very well. Rates of return for them through state contributions have been positive. Later generations have done much worse. Rates of return to them, including in the U.K., are actually negative on average. In many other countries they will be very negative. In other words, you put £1 in this year and you get less than £1 back when you retire. That is true for the generation as a whole.

What happens in the future will depend on the political power of the different generations. All of our calculations about the future costs of pension provision, winners and losers, could fall apart if pensioners vote *en bloc* for a party which will triple their state pensions. In the past six months there has been significant coverage in the newspapers about the possible indexation of basic state pensions, coming from an increasingly strong lobby group on behalf of pensioners.

We can predict much about ageing populations. However, some generations of pensioners do very well, pretty randomly, if they retire in a bull market. Others do badly, randomly, if they retire in a bear market. These effects are bigger than the predictable effects, at least over relatively short periods. The impact of these kinds of random or unexpected variations on people's pensions are much higher than the impact of demographic change over a ten-year period, though possibly not higher than the impact of demographic change from trough to peak. Even within generations there are massive transfers from rich to poor within the state system, from certain types of work to other types within occupational systems.

Thus, we do not want to lose the big issues of intragenerational/intergenerational redistribution and of inequality. Some pensioners will be very poor in the future, and some pensioners will be very well off. Policy needs to be tailored to that reality. Inequality within the working generation, unless tempered by a fairly major government policy, will be replicated by inequality in the retired generation. Current government policy aims at dampening the inequality through increasing minimum income guarantees and through making private pensions more available to lower income individuals.

We are not heading for demographic disaster or for stock market meltdown as a result of the demographic changes. We have already gone through massive demographic change in the last 50 to 100 years, or even less. To the extent that ageing does reduce growth through lower saving or lower investment, it will do so more slowly in the U.K. than elsewhere.

Government policy is important in determining age dependency ratios. What Mr Lishman said about the importance of designing pension and social security systems in a way that is, at least, neutral between retiring and continuing in work is vital. There may be an argument for saying that it should favour work as opposed to retirement. Across the developed world it does precisely the opposite.

In a large part, we have control over what the impact of ageing will be. We can plan by providing the correct incentives to save and to work and to put money into private provision, or we can plan for it by expecting very high rates of tax on labour income to pay for high state pensions. The direction that we take will impact dramatically on the effects of ageing on the population. People who do prepare for this, not just as individuals and companies, but as nations, will come out of it a lot better than those who do not.

Mr D. J. Le Grys, F.I.A.: With increased life expectation, people have to stretch their savings over a longer period to support themselves in their old age, and any fixed pensions will be eroded by inflation over the years. In some countries, retirement ages for the state pension scheme have been put back to a later age. In this country, some important bodies have suggested that we move to a higher retirement age, but there is no point in extending the pension age if people are going to retire early or are forced to retire early. Many people are retiring before age 65. Very few males — 10% to 15% — retire at age 65, and the vast majority retire early, with perhaps 50% retiring before age 60.

Some people are retired without choice, but many go voluntarily. On early retirement, people will have built up less pension entitlement, and they will have had less time to build up their private savings. Some 'lucky' people get an early retirement package from their employer, which generally provides a cash sum — probably much more than they could have saved privately up until then, and then a lower pension. The cash sum looks attractive. People perceive that, with this cash sum and the pension, they can get by. Then they could augment their income with some other paid work as well, on a temporary basis. The reality comes later. The cash sum gets used up, the other paid work ceases, and the person is left on a very low pension indeed. His or her standard of living will then be much lower than that of a person who stayed in work to age 65. So the 'lucky' people may not be as lucky as they first thought.

The trend towards early retirement impacts the living standards in old age, especially if people reach extreme old age The trend has wide implications for pensioners.

The country needs to address five areas of concern:

(1) *Funding*
Some early retirements are funded out of surpluses in pension funds. These surpluses may not exist in the future, and then substantially higher funding will be required.

(2) *Retirement age*
If people are living longer, it would be logical to increase retirement age, but if there is widespread early retirement, then this is unrealistic. Should we think, then, in terms of a flexible retirement age, with an equitable and understandable mechanism for determining the amount of pension at the actual retirement date? This will act to prevent people retiring early, because they can see that, if they stay longer, then they will get a better pension.

(3) *Regulation*
We need to address some of the Inland Revenue regulation issues, which make it particularly difficult for people to retire, to take a second job, and to draw a pension as well.

(4) *Employment conditions*
People should not be put under pressure to retire unless they are incompetent or demonstrably failing in their jobs. There should be more flexibility in job specification and rates of pay. People should be encouraged to work longer, even if they perform a lower status job with less pay. Perhaps, people over age 55 should have a series of two-year contracts. At the end of each term the person would not be compelled to be retired, but a new contract be negotiated. Job sharing should be encouraged.

(5) *Discrimination*
There should be no age barrier to promotion and no age barrier in recruitment. Retraining and tuition for new skills should be freely available for older workers.

There is a need for a national campaign, fronted by the Government, employers' groups, trade unions and pension providers, to stress that early retirement leads to poverty in the medium and the long term. People should be encouraged to work longer and receive higher pensions at a later date. We need a national campaign to change the culture in the country.

I spoke earlier about the 'lucky' people. The unlucky people are the ones who do not get an offer from their employer. They are made redundant, and they become dependent on means-tested state benefits.

Early retirement is bad for an individual's wealth, and early retirement is bad for the national wealth.

Mr T. M. Ross, F.F.A.: I, too, will speak about the retirement age and about incentives, both to save and to work — at any rate, to remain in paid work. We need to be very careful about the context when we talk of retirement ages. There is an important difference between the state pension ages of 65 for men and 60 for women, (gradually increasing to 65 for women over the next 20 years, starting in ten years' time) and when people retire, in the sense that they cease paid employment, and have no aspiration, intention, or perhaps opportunity, to resume paid employment in the future. These two are quite different.

Also, by way of preface, I would take it as given that, as a society, there is a minimum income level below which no citizen of this country should fall. That, in current language, is the minimum income guarantee (MIG), which is due to rise, if we understand the Chancellor of the Exchequer correctly, quite substantially in the near future. We would all agree that this is a good thing. It is also a good thing that it is the intention, when resources permit, that the MIG will rise in line with earnings, although it is a slightly doubtful link in some ways. At least, it is a measure whereby the poorest can continue to participate in improving living standards. It should also be given that, in the future, private provision through funding through contributions will become a larger part of provision for retirement.

With that background, there are many people — maybe not as many as half the working population, but a substantial proportion nonetheless — for whom there is a significant disincentive to save long term for retirement, under our current regime. Perhaps it could be called a penalty on saving, when 100% of the income derived therefrom is set against the means-tested benefits to which they would, in any case, be entitled. In order to address this, we are going to see proposals quite soon for a pensioner credit, which, I understand, is going to be renamed a 'pension credit', to reflect its purpose more accurately. Its purpose will be to provide at least some return from savings to those who currently would lose it all through the mechanisms surrounding means-tested benefits. However, even with a pension credit to alleviate the disincentive issue, it will still remain doubtful, for many people, whether it is wise to lock in savings for the long periods that we all consider to be appropriate to provide a pension.

So, what can be done about this? Universal state pension rights need to be improved. The Government has taken some considerable steps in this direction through their proposals for state second pensions, but I question whether they will go far enough. Many will have state pension rights in 50 years' time which will leave them below the minimum level.

Therefore, if we are prepared to pay, as a proportion of GDP for state pension rights, only that which is currently paid (a little over 5%), then there is little choice, in the long run, but for the state pension age to rise. There will be a great prize from that, because the increase in state pension rights that could then be afforded would result in a transformation in the incentives of many people to save for themselves. A decision to increase the state pension age is needed soon, because of the lead time required.

When it comes to retirement ages, I echo many of the points which Mr Le Grys has made. We need, as a society, to create better ways for people to stay in paid employment for longer, and Mr Le Grys has mentioned cogently quite a number of them.

Mr M. H. D. Kemp, F.I.A.: I am an investment manager. Those of you who are familiar with investment managers will know that we are said to make decisions over very short time frames, say 12 to 18 months. We also tend to be bullish, and we have a number of other characteristics that distinguish us from most other actuaries. I will be bullish; I think that living longer is not something that we need to lose too much sleep over.

There are several points which support this view. First, a nation's wealth is not well correlated to its age profile. As an example, I ask: "Which country has the younger age profile, Morocco or the U.K.?" The answer is Morocco. "Which country is wealthier?" Not Morocco. "Which country would you place money on to be wealthier in 40 years' time?" With respect to any Moroccans present, I would still place money on the U.K. being wealthier.

A nation's wealth is not well correlated with its age profile, because it is hugely dependent on the political, economic and legal infrastructure, and the other kinds of characteristics that knit society together. I would rate the U.K. as relatively well positioned compared to many other countries in this respect.

Also, if you look at the key drivers of economic growth over very long time periods, the main driver is the introduction of new technology. If we look at the last 400 or 500 years, why is the world so much wealthier now than it was then? I would contend that it is due to the huge technological advances and developments that have occurred over this period.

I do not see any let up in this trend. The older generation, the grey surfers, who spend much time on their PCs and the Internet, are as well positioned as many others to take forward these technological advances. Recently I read a survey that concluded that the most usual age for a dot.com entrepreneur was not the 20 or 30-year-olds, that you might expect from reading the tabloids, but the 40 to 50-year-olds, and perhaps that age will become even older as time goes on.

Change will throw up opportunities as well as threats. From a personal perspective, I have learnt several lessons as I have grown older. First, I discovered that when I got to 21 and left college, there was life after that. I have more recently discovered that there is truth in the adage 'life begins at 40'. God willing, I expect to discover that, when I reach 50, 60, 70 and 80, there will be life after those milestones as well. Not only that, but other people have discovered that this is the case, including advertisers and businesses. The point about EuroDisney is very well made. EuroDisney will have to change its spots, but the business world has been changing its spots in many ways over many years already. There will be new groups of affluent purchasers, who, it is hoped, will boost the spending power of the economy. So, I believe that we should not become too doom and gloom laden when thinking about the demographic 'timebomb'.

Dr S. Harper (a visitor; Director, Centre on Population Ageing, University of Oxford)**:** I want to pick up on some of the former points, but also to extend this discussion into its more broader, historical and societal contexts. Listening to much of the public debate about retirement, you would think that fixed retirement at a chronological age has always been around. Yet, historically, it is very new. Until the Second World War, the idea of mass retirement at a fixed age was almost unknown. In the past 30 years we have redefined old age in economic terms, and, thus, we have seen the separation away from a biological age, which is defined by frailty, to a chronological age, which is defined by pensionable age.

Retirement is new historically. Mass retirement really only emerged after the Second World War. It came as a variety of complex factors, but very much factors historical to that time. The age 65 was chosen, because most male manual workers could work at 60, but very few could work at 70. In addition, there is an interpretation which argues that it was the growth of bureaucratisation and administration within large corporations which led to mass compulsory retirement as a form of personnel management.

What we tend to forget is the absolute horror with which retirement was approached when it was first introduced. A Ministry of Health circular, that was distributed to health clinics in the 1930s, stated: "apathy, listlessness, loss of purpose, the release of death comes soon." This was not about CJD, or even about Alzheimer's disease, it was about retirement. It is sometimes hard to believe that, even in the 1950s, the ideas of retirement and death were synonymous. Attitudes change; expectations change.

However, you will say: "What about the training and retraining of older workers?" During the 1950s and the 1960s, we had a mass of evidence that showed that, contrary to public belief and to what was being said in the media at that time, older workers are easily retrained. They are also very reliable and consistent. Also, we have to consider, not only retraining a group of older workers of the current cohorts, who may not be as familiar with new developments such as information technology, but also the retraining of future cohorts. If we look at the kind of working patterns that are going to come along in the next 20, 30 or even 40 years, we are going to have groups of workers who, because of matters like the 'feminisation of the workforce', 'family friendly practices', and the reduction of 'careers for life', are going to be very used to updating their skills constantly. You will be updating at ages 30, 40, 50 — why not at ages 60, 65, 70?

My second point is that future cohorts are going to have a very different life experience to the cohorts that we currently see entering later life. The kind of career experiences of people currently in their 20s and 30s will lead much more naturally into a future where the idea of compulsory retirement is not what they will naturally expect.

So, then you say: "What about health?" We know that much of the push in life expectancy, in the last few years, has been due to increasing life expectancy in these last years of life. The question is then: "What is the relationship between mortality and morbidity?" Does extending life actually mean extending healthy active life? Here, the debate is confused. If we look at data from the Office of Science and Technology, there is some indication that, for every three years of extra life, only two of these will be healthy. If, however, we turn and look at some of the data from the United States of America, there is a suggestion that the use of cohort data more than doubles the prediction of healthy life (Morton & Land, 2000). We need to look at the health and other profiles of each specific cohort. The life experience of younger cohorts, in health terms, is going to be very different from the cohorts that are approaching later life now.

We need to recognise the broader context of the debate, that attitudes and expectations towards retirement are not fixed, and that every cohort is going to carry its own specific health and work experience history with it.

Thus, future cohorts will have very different health profiles than current cohorts. They will have very different life employment experiences, and it is very possible that they will have very different expectations concerning retirement and full-time withdrawal from the labour market. Policies to increase working life or to defer retirement by two or three years, for current cohorts, make sound, economic sense. Many governments, throughout the world, are beginning to look at this.

The longer-term view must recognise that mass retirement, supported through pension schemes, may not necessarily be the common, nor desired, experience of future cohorts, which may well have very different expectations about their retirement.

While we may have some idea of the behaviours and expectations of current cohorts of 50-70 year olds, to extrapolate such later-life behaviour and attitudes to those currently in their 20s, 30s or 40s is challenging, and potentially misleading.

On a practical note, we need to encourage the collection and use of cohort data in the U.K. as is being done in the U.S.A., to address some of these issues here.

Reference

Morton, K. & Land, K. (2000). Active life expectancy estimates for the U.S. elderly population. *Demography*, **37**, 3, 253-265.

Mr A. F. Wilson, F.I.A.: One of the most important things that we shall have to do is, undoubtedly, to change people's ideas about retirement. One of the reasons why I say this is that we are all pointing in the wrong direction at the moment. We have seen people retiring earlier and earlier. Whereas, a few years ago, somebody retiring at age 55 was embarrassed by it, nowadays, somebody retiring at age 55 is delighting in it, and says: "Haven't I done well!"

In the 1960s, when I started work, there was much talk about various advances bringing down the five-day working week to a three-day working week. Now we are all working longer hours each day, but the 50-year working life seems to have come down towards 30. I wonder whether one of the things that is actually happening is that, in order to be able to make sure that we have the wherewithal to live as a whole community, we actually do need less time working than we did before.

I am a great believer in the idea that the whole of society changes gradually to meet the challenges in front of it. I am not a doomster here. I have seen a great deal of interesting changes. I am quite astonished by the number of people who now seem to be taking off a year here, or a year there, in their life. There was no gap year between school and university when I started, nor was there a gap year after university, but both of my children are doing it.

I am now beginning to see people taking gap years part way through their careers. Is this going to be a way in which they are going to extend their 30-year working life? If you look at one of the reasons why there has been a lowering in the retirement age, you find that there are two features. One, undoubtedly, is the occupational pension scheme, the final salary scheme, diverting resources rather than reducing contributions, paying pensions to staff that companies want to get rid of. They want to get rid of them, by and large, because of the change of pace in society. Is that change of pace going to get any the less? If not, how can we expect people to retire much later than they are at the moment? Curiously, one of the answers to that might be in the semi-demise of the final salary occupational pension scheme.

One of my colleagues in America, dealing with a group of American professors, was rather surprised to find that their average age at retirement had gone up. Then he realised that they had moved from a final salary scheme, in which retiring either at age 60 or at age 65 did not make much difference to their pensions, to one where they had a defined contribution, a money purchase, scheme, where they found that, if they deferred retirement for a year, then they would have a huge increase in their standard of living. They could see how much more they had saved to spend over a shorter period.

Maybe, one of the things that is going to happen with the move to money purchase is that we will begin to find that people see that they need to retire later or that it is worth their staying in work. This comes back to the question of: "What is the incentive to stay in work?"

Mr P. J. Nowell, F.I.A.: I am pleased that, so far, everybody here thinks that living longer is a good thing. As Chairman of the Continuous Mortality Investigation Bureau, I think so, too.

The decline in the birth rate is not quite so good, because that reduces the numbers of people at younger ages. We, as actuaries, and the CMI in particular, can do our part in the working out of relevant figures by collecting and analysing statistics. I was particularly interested in Dr Harper's comment about cohort analysis, because that is something that we can do with the CMI statistics. We are working on that at the moment. We have also adopted a very successful critical illness investigation, which, again, is going to help with the information about the impact of illnesses. I think that, as time goes on, and the number of policies increases, matters like long-term care are going to become more amenable to answering questions about how long people live, the quality of their lives, and so on.

In addition to that, the Americans have started an investigation on extreme longevity, and there is to be a symposium next year on mortality at very high ages. There are now many more centenarians than before in the U.S.A., and also in the U.K., so this is an issue which we should start to understand and to debate.

Technology is very important for the future. There are those who will get rich if they find the right things to supply to the ageing population. This is the key to the quality of later life and to keeping people alive longer. Food is dramatically cheaper than it used to be, through technological efficiency, apart from anything else. If we can invest in the infrastructure of good insulation, then that is also going to make a big difference to people as they get older. Mechanical and technological aids to people who are slowing down will make a dramatic difference to their quality of life. These are what people will be spending their money on. If we can supply them more effectively, that will be important. Economically effective medical advances can reduce the costs of keeping people alive, as well as improving and extending life.

Therefore, if you think in terms of changes in the dependency ratio against the changes in productivity, which we have seen in recent history, then there is not much to worry about. It is just a very optimistic future. As others have mentioned, in the U.K. we are actually in a much more gradual process of change. That has to be good for us.

Another issue which has been mentioned is the difference between savings and investment. Many of us think that getting people to put money aside is a good thing, but if that went into pushing stock markets to higher and higher levels, then the saving could dissipate itself in some crash at a later stage. The most important thing is for us to encourage the thought that spending ought to be focused on producing a technologically advanced infrastructure and keeping people healthy. That is what will really help us in the future. In other words, if we think in terms of investment for the future being more important than savings, then we will go a long way to improve the situation for the future.

Mr N. E. Gould, F.I.A.: Three score years and ten may still be a good target for living for desert wandering peoples. Consider such a nation. Like the aboriginals, they probably have an APO e 4/4 genetic trait. The higher Altzheimer susceptibility does not matter. They have high cardiovascular death rates; few of them reach an age when their dementia will cause trouble. They die at relatively young ages, so they are not an intolerable burden on their community. Lengthen their lifespan by reducing their heart disease, and their nomadic way of life ceases to be sustainable. Whatever their wealth is, longer life will be very bad for it.

We seem to be in a population that does not need APO e 4/4 types. We need much lower ones. We have different problems. Medical advances have brought tremendous benefits and the reverse. There are limits, and a balance has to be struck as to how far we go. For instance, for 30 years I have been enabled to work because of a very cheap drug. There are now, supposedly, much better drugs available, at only 500 times the cost! Should I ask the nation to pay for, maybe, a longer better life? I might go on to age 130. Those seeking the likes of beta interferon present much more difficult questions for us, particularly if our wealth is more than money.

There will never be a time when the nation's resources will support the believed optimal medical treatment for minimising mortality. The medical industry has it own agendas. The problem is escalating, and we cannot expect the medical profession to solve it on its own.

Medical ethics for the new century need to be explored. Economics need to be involved explicitly. Do you really want to be a politician? Do you want to draft the questions for the referendum? You are not going to want to put the changes in your manifesto, that is for sure.

Actuaries should be able to contribute much to the debate. Sophisticated advances in multistate modelling could help to illustrate just what the range of consequences are for the population. It will not be a game theory exercise. I am a prophet of doom, and the catastrophe possibility is not just theoretical. One does not need to spend a long time looking at the realities outside the comfort zone of these shores to see what could happen.

To answer the proposition for this discussion, we need to decide to what extent living is more than not being dead — keeping all in cryogenic suspension waiting for a genetic cure is not the way to wealth. We also need to agree what the nation's wealth is. Armed with these answers, we will have a better idea whether living longer needs to be bad for the nation's wealth. Perhaps we need a new insight into why a fairer society is in nearly everyone's interest. Maybe our Presidents will need to enter the public arena more. They should have at least as important a contribution to make as any archbishop or chief rabbi. Ethical values were always driven by practical needs, and we are a practical profession. Perhaps change management of national ethics of ageing should be a Fellowship option.

Dr D. Metz (a visitor; Centre for Ageing and Public Health, London School of Hygiene and Tropical Medicine)**:** A number of speakers in the discussion have mentioned health, which is important if we are to contemplate working longer. Health is also important as a charge on the nation's wealth. There has recently been an accumulation of evidence from a number of countries concerning the incidence of healthcare costs in relation to age.

If we look at the cost of healthcare, for instance, as incurred by the National Health Service, we find, of course, that this increases with the age group, from middle age onwards. For example, the average annual cost to the health service of people aged over 85 is some six times that for those in the age range 45 to 65. This rising cost is naturally interpreted as reflecting our increased need for medical attention and medical interventions to deal with age associated impairments as we grow older. Then, it is common to argue that the rising numbers of older people must inevitably lead to an increase in health service expenditure in the future. However, there are two cautions that one should interpose in this line of reasoning. First, the present pattern of health expenditure as a function of age is not immutable. A number of previous speakers have referred to cohort effects and changing expectations. Certainly, one can see that, through preventive measures, including healthier lifestyles, and through new medical technologies, we have within our power the postponement of the more expensive healthcare interventions. So, when projecting future healthcare expenditure, we need to think, with foresight, about changing practice and the impact of new science and technology.

My second caution is more substantial. The supposition that healthcare costs necessarily increase with age may actually be a delusion, because there is an alternative explanation for the apparent increase in healthcare expenditure with age. That is, more people are dying in the higher age groups, and there may be higher costs associated with the treatment of the diseases that lead to death. This hypothesis would be sufficient to explain the pattern of cost as a function of age group that we find in practice. We have no need to postulate any increase in healthcare costs as a function of chronological age, as such. What is interesting is the increasing accumulation of evidence for a surge in the cost of acute healthcare in the last six months of life, irrespective of the age at death. The evidence comes from the U.S.A., from Canada, from the U.K., from Germany and from Switzerland (see, for example, McGrail *et al.*, 2000). This cost surge, which is sometimes designated as 'the high cost of dying', seems to be the main determinant of the pattern of healthcare costs by age group. There is little evidence that there are other important factors driving the upward trend in healthcare costs with age.

The implication of these findings is that increasing life expectancy ought not to make much impact on overall healthcare costs, because we die only once. Increasing life expectancy may be expected to postpone the expensive terminal phase of medical care, and not prolong an extended period of relatively costly care. However, one then has to say that we have an ageing 'baby boom' generation, and that that will increase the numbers, the cohort size, of those requiring late life medical care, at least transiently. On that account, there will certainly be increased costs of healthcare, but, in respect of increasing life expectancy, we need not be pessimistic.

This evidence about the incidence of healthcare costs is consistent with the expectation that extra years of life expectancy in the future will be years of relatively good health — in effect, years added to the middle of life rather than extra years of poor health added to the end of the present kind of life course. This has implications for the debate that we are starting in this discussion on the time of retirement. One can certainly contemplate later retirement on the grounds of increasing health expectancy.

My other point is more general. When modelling the interaction between demographic trends and the future cost of health and social care, it is important for actuaries and economists to work with those who are elucidating expenditure patterns of service provision, if sensible projections are to be made. This was an area where both the Royal Commission on Long-Term Care and the Department of Health made projections about the future costs of health and social care which were based on wrong assumptions. They both overestimated these costs. When projecting healthcare costs in relation to the life course, what you need to do is to count back from the date of death rather than the more usual practice of counting forward from the date of birth.

Reference

McGrail, K., Green, B., Barer, M.L., Evans, R.G., Hertzman, C. & Normand, C. (2000). Age, costs of acute and long-term care and proximity to death: evidence for 1987-88 and 1994-95 in British Columbia. *Age and Ageing*, **29**, 249-253.

Mr C. Shaw (a visitor; Government Actuary's Department)**:** I am from the section of the Government Actuary's Department that deals with the official national population projections, and I would like to mention some work in progress at the GAD which is highly relevant to this topic.

I have prepared a handout which goes into somewhat more detail [and this appears as a written contribution to this discussion].

In common with all other developed countries, the U.K. has been experiencing historically low levels of fertility for many years. If this continues, providing that it is not offset by extremely high levels of net immigration, then the population of the country will peak in size sometime before 2050, and then start to decline. The same prospect is in store for most other countries in the developed world. As we all know, the most significant developments in prospect over the next 50 years is population ageing.

A report, earlier in 2000, produced by the Population Division of the United Nations, entitled *Replacement Migration*, has addressed the question of whether higher levels of international migration could prevent future projected population decline and population ageing. It is a report that has generated a considerable amount of media attention. At the same time, you have doubtless read in the newspapers that there has been increasing discussion of the pros and cons of encouraging higher levels of immigration, in particular with regard to tackling perceived skill shortages in the job market. That culminated, in September 2000, in this country, with a government call for a debate to begin on the benefits and challenges of managed migration.

With this background, we have been looking at the degree to which population decline and ageing are inevitable, and the extent to which these trends might be modified realistically by changes in demographic behaviour. Unlike the United Nations report that I have mentioned, we have been looking, not just at migration, but also at possible fertility changes.

The assumptions underlining the latest GAD principal projections are for an average family size of 1.8 children per woman and for net annual migration of 95,000 persons per year into the U.K.

With these assumptions, the population of this country would continue to increase to around 2036, and then start to decline. However, population decline is not inevitable; under higher, but still plausible, assumptions of fertility, the population could continue to grow. However, substantial population ageing will occur under any plausible set of future assumptions. The work that we have been doing demonstrates that the precise level of population ageing at, say, the end of the twenty first century is much more sensitive to future fertility levels than to migration.

As result of population ageing, the demographic support ratio — the ratio of people aged 15 to 64 to those aged over 65 — is projected to decline from its current value of over 4 to around 2.4 from 2040 onwards. We have been looking at how this ratio might vary, given alternative levels of future migration or fertility. Our results show clearly that substantial inward migration is not a long-term solution to the problems of a falling support ratio. Even an annual migration of a quarter of a million people, which is far more than the U.K. has ever experienced, would not prevent the support ratio falling below 3. In comparison to that, a comparatively modest increase in fertility to 2.0 children per woman will produce roughly similar ratios; and higher fertility levels, if they could be achieved, would significantly boost long-term support ratios above that.

Another piece of work being undertaken at GAD is the launch of a review of the methodology that we use for formulating mortality projections in the national population projections. A project initiation document will be on our website (www.gad.gov.uk/population/population.html) by the end of October 2000. It outlines the scope of the review.

Sir Michael Ogden, Q.C., Hon.F.I.A.: I wish to talk briefly about pay-as-you-go, which is one of the items listed in the scope of this discussion that no one has mentioned.

I started work in 1944, and at the age of 21 I was a retired cavalry captain. Later I went to Cambridge, and then was called to the Bar. In 1978 I was so depressed at the inability of self-employed people to provide adequately for their pensions that, when I had a long case in Hong Kong, I very nearly decided to stay there. Happily I did not, because the next year the Government took the lid off Section 226 policies. As result, I am a quite happily retired pensioner. It is deplorable that Section 226 policies were abolished, just as it is deplorable that there have been other hostile acts by the present Government against those saving for pensions. So much for incentives.

Pay-as-you-go, in my view, is no longer sufficient. People talk about later retirement. Politically that is almost impossible for a government to undertake as a matter of compulsion. No one is going to accept lower pensions. That only leaves compulsory payments for pensions by those in work. I see no reason why our descendants should be lumbered with an outrageous tax bill because people currently in work will not, whatever incentives they are given, do anything to provide for their old age. However, pay-as-you-go is simply not enough. We are better placed than virtually every other country, save Ireland, in Europe. We do not need a very large adjustment, as our deficit is not nearly as bad as those in other countries, but, if it is done fairly promptly, it need be only minor. If it is left, the longer it is left, the greater it will have to be, and it will have to be. No one expects any political party to go for this before the next election. Obviously, it is a new tax, is it not?

Mr P. Mullan (a visitor)**:** I wrote a book, earlier in 2000, on the topic of the demographic timebomb. The title of the book was *The Imaginary Timebomb*. By that title, one might presume that it is a riposte to the gloom and doom about the great burdens and problems generated by an ageing population. It is that, but it is not a book which is one which is optimistic or complacent. While many of the views that I have heard in this discussion have been extremely heartening in terms of rejecting some of the more apocalyptic views as to what an ageing population represents, beyond this Hall the spectre of the demographic timebomb is the conventional wisdom.

One of the yardsticks by which one measures the humanity in a country is how it treats its elderly members. Thus, for as long as there is a presumption that an ageing population represents a burden, then this will encourage negative attitudes to the elderly. This is a worrying trend. There is a vital need for a balanced public discussion of the issue.

We should be very careful about any demographic determinism, any attempt to draw social or economic implications from a particular age structure. Dr Metz argued eloquently on the health subject, that there is no determinant relationship between a particular age structure and the particular health cost or some particular assumption by exponentially rising health costs. More generally, as Mr Kemp argued, that there is no determinant relationship between an age structure and GDP growth. Mr Johnson went some way to indicate that the data were far from conclusive of any determinate relationship.

Over the 20th century, as Mr Johnson said, the British population has been ageing fairly steadily. This coincides with all sorts of patterns of GDP growth. The common increase in the population structure and the age of the population structure can co-exist with periods of expansion, with periods of slump in the 1930s, with cycles of recessions, booms, and so on. There is no determinant relationship. That is one of the main ripostes to the idea of this timebomb exploding in 30 or 40 years' time. Productivity growth, regardless of what is happening to ageing, has been rising at a fairly steady 2% p.a. to 2.25% p.a. A growth of 2.25% p.a. over 50 years compounds to a tripling of national wealth. That means that, when we look forward to that time when the 'baby boomer' cohorts have reached their later years, there will be a national wealth which is three times larger than it is at the moment; enough for prosperity for all.

There are two other points which, I hope, illustrate the dangers of demographic determinism. There is already, within the countries of Europe, quite a range of levels of public spending on pensions. In Britain, something like 7% to 8% of GDP is devoted to public pensions. Germany and France, with fairly similar age structures, devote 12% to 14% of their GDP on ageing populations. There can be a great variation existing, and it indicates that there is an element of choice here, that it is a choice of society as to how much it devotes, and therefore one should not draw any negative conclusions by simply saying what would happen in Britain if, overnight, we had a 50% increase in the pensioner population, and the proportion of our GDP going on providing for pensions increased from 8% to the level that it is now in much of western Europe, 12%-14%. Those countries are surviving with those levels of expenditure. There is no reason why Britain will not survive by making that increase.

The final point against demographic determinism is the impact, which many people have said, of the labour market participation rates. One of the most problematic arguments used by those who talk about the 'big problem' is the dependency, or support, ratio. It assumes that everybody above age 65 is dependent, and that everybody in the 16 to 64 age group is productively employed. That is plainly not the case. There are many other reasons why people are not working in Britain. Something like 25% of the population who are assumed to be working are not, in fact, participating. That changes this quite considerably. There may be labour market problems in terms of how many people are working, but it is not a demographic problem of a particular age structure.

Mr D. B. Duval, F.I.A.: There seems to be agreement that we have a problem. We have a group of people who we have promised to keep in idleness, although they do not need to be kept in idleness. They have no financial incentive to work, and, indeed, are in a system which practically precludes them from getting work. We faced this problem once before. In the 18th century these people were called the aristocracy, and it took us a very long time to solve it. Whether we will solve this one so easily, I am not sure.

Mr Johnson suggested that there should be a very substantial transfer in the pension system from the rich to the poor. That is not true if you look at the very poorest. If you think of the very poorest people in our community, the people who sleep on the streets, for most of them it does not matter whether the state pension age is 65, 60 or 70. They will be dead before they get there. It is an important point to remember that, when we talk about poverty, actual old age is not a major source of poverty. If you divide poverty by age, the old, on the whole, are less poor than most other age groups. The proportion of very poor in the older age groups is quite small.

On the incentive question on retirement, the discussion has been generally in agreement that something needs to be done. However, for what needs to be done there are two options. One is that we have a big government publicity campaign, as Mr Le Grys mentioned, and we introduce a great deal of new law and new systems to change the way in which retirement occurs through incentives or compulsion. In my view, that is totally wrong. In so far as we have a problem with the existing system, it is a problem of excessive rigidity; that the system is too rigid, and therefore not adapted to changing circumstances, changes in longevity and changes in health. The solution to an over-rigid system does not seem to be to put in place a large number of new rigid ideas, but rather to try to remove them, and to allow individual choices by people and by companies. If companies discover that old people are cheap to employ, willing to work, and work very well, then they will do so, and we do not need a major publicity campaign to teach them that fact. So, I think that the debate is one where it would have been nice if we have had had it more actively — not as to: "what the problem is,'' but: "how it should be solved.'' I would range myself broadly on the free market side of that.

Mr Gould threw out the most challenging question, which is: "What is health and wealth and life?'' I agree with Mr Wilson that we have the problem that the division between work and leisure is becoming rather illogical and unsuitable, but again, as he said, things are improving slowly in that area. On the issue of wealth, I would say firmly that population decline, in my view, is a positive for an area of national wealth which I care about very much, which is the amount of wilderness left in this country. We are a very small country, and, frankly, the smaller our population gets, the better.

Mr D. R. Linnell, F.I.A.: I want to challenge the assumption that paid employment contributes to the nation's wealth, and that being a pensioner does not. I may be oversensitive, as a pensioner myself, but I observe that a large number of pensioners contribute considerably to society, both by voluntary support care in the home and in outside charitable agencies — work which, if they did not do it, would have to be paid for, and which would, therefore, get into the economic statistics. As I have listened to the discussion, there appeared to be a conundrum here. It might have been true, when pensioners died relatively soon after retiring, that they did not contribute anything like as much. However, nowadays, pensioners giving 20 or 30 years' support inside the home or outside, are making a major contribution to society, which we may not be measuring properly.

Mr D. Coleman (a visitor; Reader in Demography, Oxford University)**:** I support the comments of previous speakers that we are not facing a demographic timebomb (Coleman, 2000). Demographic time bombs in the U.K. only go off in the media, not in real life. It is also important to resist the temptation, which emerges in these agendas, that there might be a solution to population ageing. Population ageing is an absolutely inevitable consequence of two highly desirable trends in human life: namely, longer expectation of life and better control of the birth rate. If the human species lasts for another 1,000 years, 10,000 years or even a billion years, which is perhaps the expectation of life of the solar system, then we will be stuck with population ageing and with low birth rates. There is no point looking to the Third World to save us through migration, because they will be experiencing population ageing as well. It is the universal tendency.

I now consider focused labour migration. Most migration is not economically focused at all, and it is extraordinarily difficult to make it so. The examples of the U.S.A. and Canada are very often cited as being paradigms that we should follow. In fact, both in the U.S.A. and in Canada the great majority of migrants are not labour migrants. In Canada, in the 1990s, the proportion of migrants entering under labour preferences sometimes dropped to a tenth of the whole; in the U.S.A. it was about a sixth of the whole. It may well be that the proportion of migrants entering the U.K. legally for labour purposes is actually higher than it is for the U.S.A. The great majority of legal migrants to the U.S.A., Canada, and most places, are friends and relations, the dependants, the spouses, the children, of people already settled, and not people recruited for purposes of work.

A debate that has been launched by Mrs Roche, Minister of State at the Home Office (Roche, 2000), on labour recruitment, appears to proceed on the assumption that we have not thought of this already. However, we have. Since 1920 there has been a work permit system which has permitted variable numbers of foreigners to enter the U.K. for purposes of work for limited periods of time, extended, sometimes, to permanent settlement, according to the demands of the economy. Sometimes this has brought in as few as 20,000 a year. In the last couple of years it has brought in more than 70,000 a year. In our case, the majority are highly skilled. While it is true that the labour permit system may be somewhat inflexible, there does not seem to be any particular need for a radical reassessment of it, given the rather marginal contribution which migration can make to the economy anyway. It is not for nothing that migration is typically fairly generally ignored by U.K. economists, and, in numerical terms, is a small contributor to the U.K. labour supply.

We do not even know where the shortages are. For the last few years we have had extraordinarily poor data about labour shortages in the U.K. We have even had inadequate data about the exact specialisations of those migrants coming in under labour permits, because of a change in the way that statistics are generated. So, we do not know what the target is; we do not exactly know what the needs are. We do know that there are shortages reported in the NHS, which may well be more to do with the organisation of recruitment to the health service in this country rather than any fundamental problem of recruitment. We also have a shortage of IT specialists, as does most of the rest of the world. If you look on the website of the Department for Education and Employment, you will be gratified to see that, alongside vets, there is also a shortage of actuaries.

It seems to me that we should calm down a bit about the possibilities of migration resolving either problems of age structure, which it cannot do, as Mr Shaw has shown, or shortages of labour. Migration will continue, without doubt, to play a small and valuable part in the improvement of the U.K. economy, but that contribution will probably remain small, and we should not get too excited about it.

References

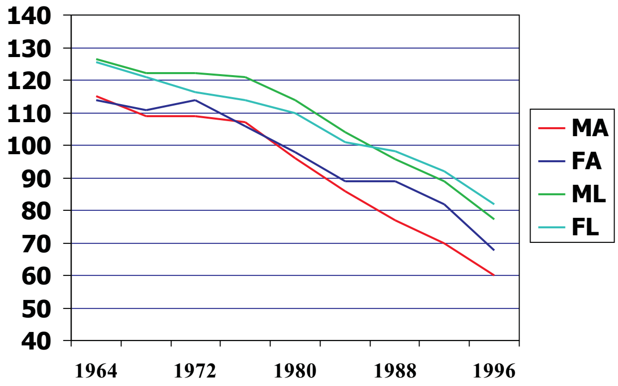
Coleman, D.A. (2000). Who's afraid of low support ratios? A U.K. response to the U.N. Population Division report on 'Replacement migration'. In United Nations Population Division *U.N. expert group meeting on policy responses to population aging and population decline.* United Nations, New York. www.un.org/esa/population/popdecline.htm

Department for Education and Employment. Overseas Labour Service. www.dfee.gov.uk/ols/html;/bc/bcshort.htm

Roche, B. (2000). Speech on migration. Given at the Institute of Public Policy Research, London. 11 September 2000. www.ippr.org.uk

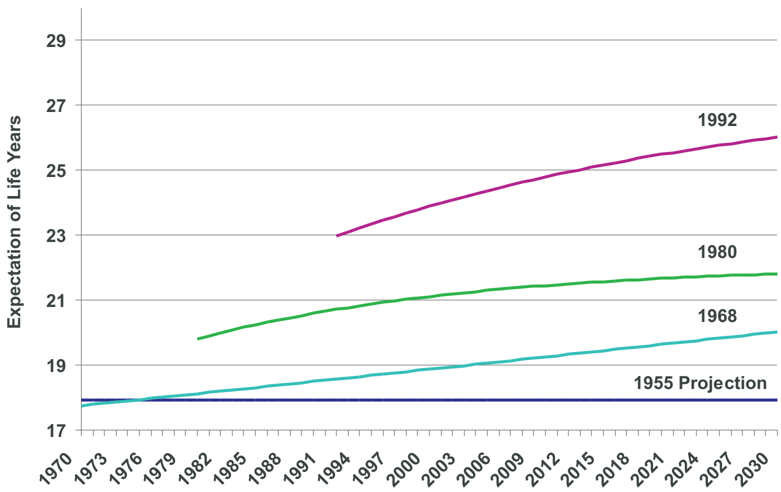
Mr B. P. Ridsdale, F.F.A. (closing the discussion)**:** This is a subject that is close to my heart, as I am a member of the ageing population, as, indeed, we all are; so is virtually all the developing world.

There is little doubt about the demographics. For each person over pension age in the U.K. in 1998, there were 3.5 people in the working population to support him or her. In 2036 there will only be 2.4 such people, and if the state women's retirement age had not been increased to 65 by that time, there would be only 2 such people. Mortality is falling, and life expectancy is increasing. What is interesting is that, every time we re-estimate it, we find much larger projections. Mortality is always surprising us with improving longevity. Figure R.1 shows how mortality rates have fallen, and Figure R.2 shows the expectation of life for males age 60 for projections made in several past years.



Source: CMI, P. A. Leandro

Figure R.1. Falling mortality, 'all ages', 100 A/E based on PA(90)



Source: CMI, P. A. Leandro

Figure R.2. Longer life, expectation of life for males aged 60

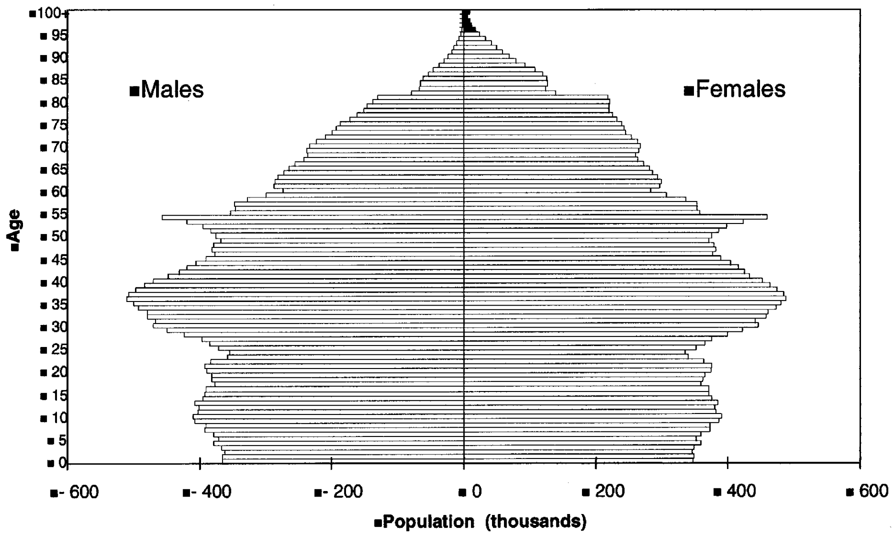


Figure R.3. 1998-based national population projections, United Kingdom, in 2001

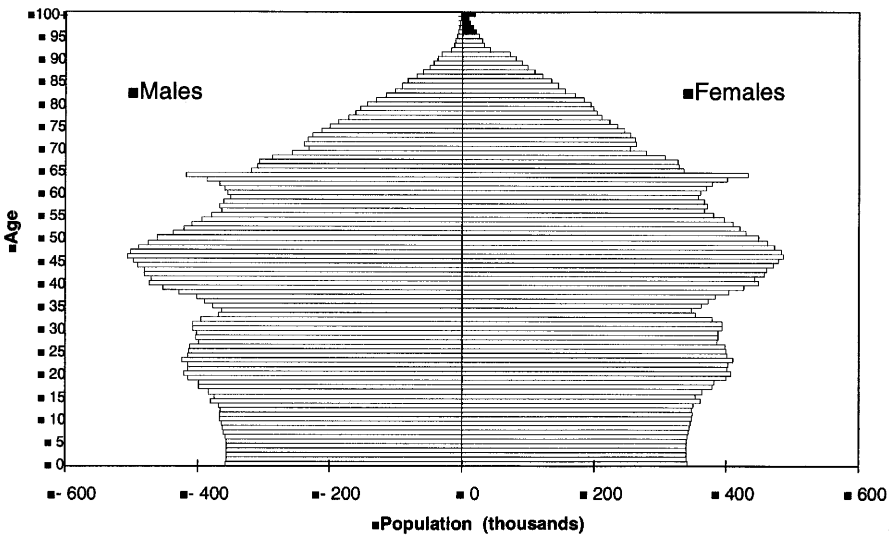


Figure R.4. 1998-based national population projections, United Kingdom, in 2011

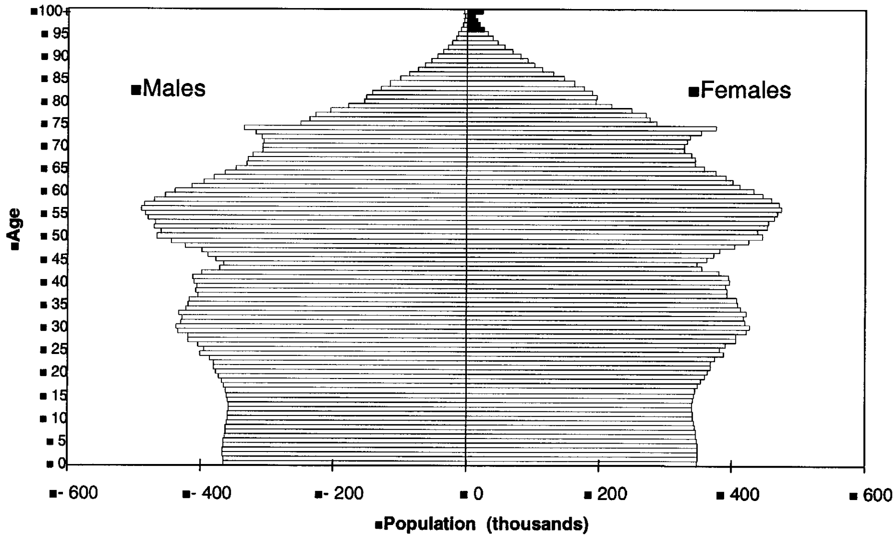


Figure R.5. 1998-based national population projections, United Kingdom, in 2021

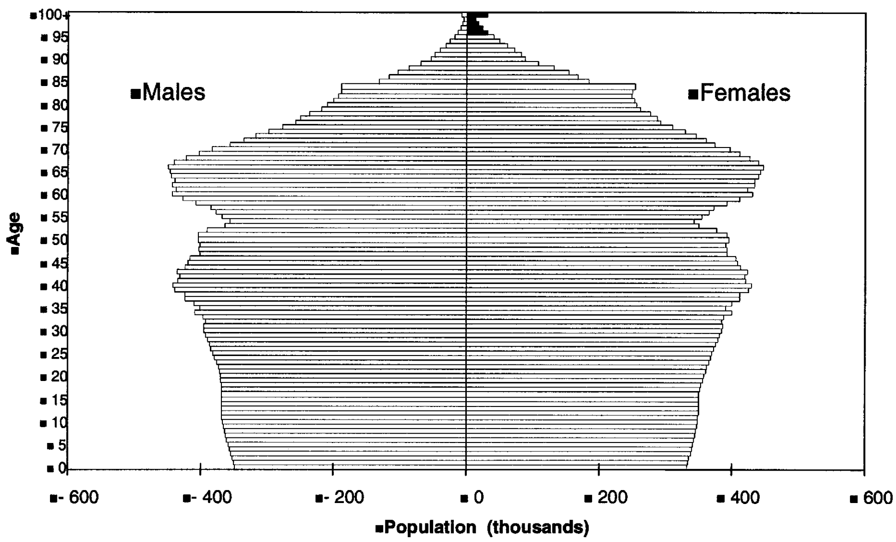


Figure R.6. 1998-based national population projections, United Kingdom, in 2031

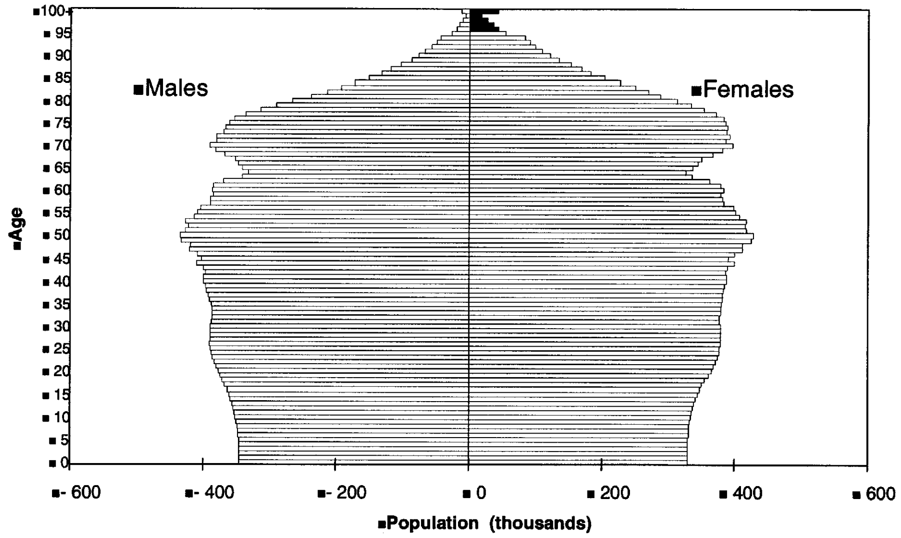


Figure R.7. 1998-based national population projections, United Kingdom, in 2041

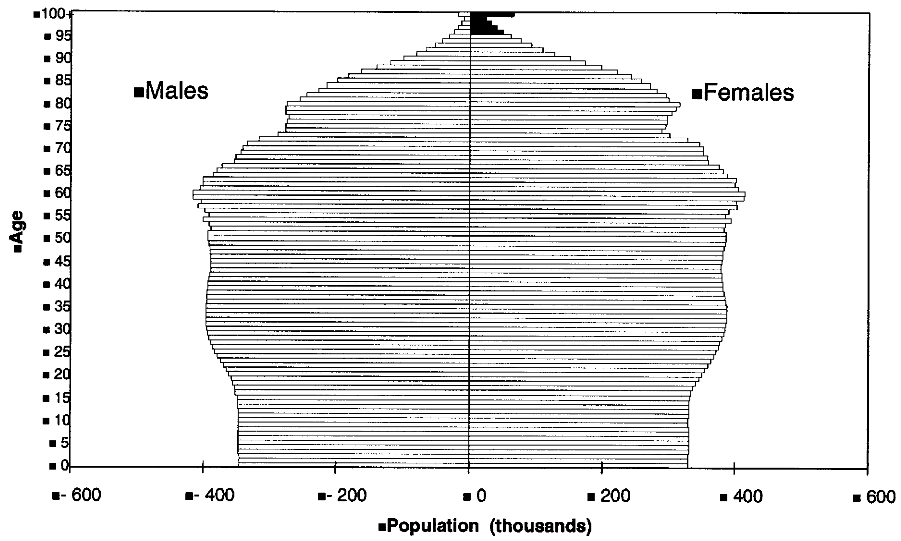


Figure R.8. 1998-based national population projections, United Kingdom, in 2051

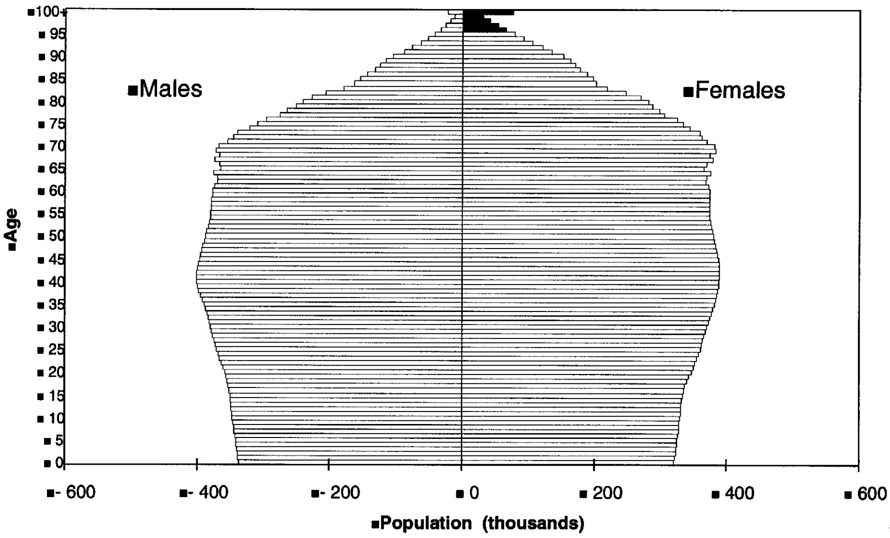


Figure R.9. 1998-based national population projections, United Kingdom, in 2061

The principal cause of our ageing population is not improving mortality, but the 1960s 'baby boom'. Figures R.3 to R.9 show this. In Figure R.3 the post-war baby boom is the little shelf at around age 55, and in Figure R.4 it is around age 65. The 1960s baby boom is the big bulge at around ages 30 to 45 in Figure R.3 and around ages 40 to 55 in Figure R.4. I often have people say to me: "The baby boom? Oh yes, the post-war baby boom." It is not the post-war baby boom that is critical, it is the 1960s baby boom. As time progresses, as we move on each 10 years, we see, in Figures R.5, R.6 and R.7, the baby boom generation moving up, until we get to 2052-2061, (Figures R.8 and R.9), where we have a really full old age population. Mr Shaw referred to the point that the population will be at its maximum somewhere between 2036 and 2050. That depends so much on the rate of fertility.

Of course, measuring the number of people above retirement age ignores the serious issue of mass unemployment below retirement age. According to 'Winning the Generation Game', the Cabinet Office Paper of April 2000, of the males between age 50 and state pension age, one-third (2.8 million) are not working. Dr Harper referred to a report from the past that mentioned retired people with the description: "apathy, listlessness, loss of purpose; death comes soon." However, the Cabinet Office found that, for people who retired early nowadays, there is poverty, there is exclusion, and there is disillusionment. Mr Le Grys pointed out that, in raising the retirement age, there is little point if people cannot find work. Mr Johnson referred to the logical approach that, if people were living longer, then they should be working longer, but, of course, they have to find the work. What is needed is structural and substantial changes to enable work to be available for those who wish it.

Mr Le Grys called for a national campaign to change the culture, to discourage early retirement, on the grounds that: "early retirement is bad for the individual's financial wealth; and early retirement is bad for the country's financial wealth." I agree. Mr Le Grys linked this with employment flexibility, and I think that Mr Salter would agree with that. It is only when we have had the discussion about making work more available, that we can then move on to the key question of: "What should the state retirement age be?" This was covered a little, but it is worth thinking through the options. Should we leave it at age 65? Should we work on a constant expectation of life, so that people retiring now would have, on average, the same expectation of life as people retiring in 1950? Should we look at the approach developed in Canada, where there is a substantially bigger baby boom coming through, and a much bigger ageing population situation? The Canadians have come up with the concept of the wealth transfer index. This is the proportion of the amount earned by those working that is paid over to those who are retired and receiving pensions. Having worked out the wealth transfer index, they are able to ask: "What is the maximum that we can expect the working generation to cope with?" They can then work out the retirement age that would lead to the burden placed on the unemployed remaining at a reasonable level.

There was some discussion on health expenditure and age. Dr Metz referred to the incidence of the cost of health in relation to age, and suggested that it may be an illusion to think that an aging population is a sicker population. He proposed that we consider the longevity increase as an increase in the length of middle age, rather than an increase at the older end. He suggested that we should be looking at the age-specific costs of healthcare, by counting from the end of life rather than from the beginning.

There was some discussion on the possible approaches of increasing immigration and increasing fertility, in order to maintain the size of the working population. Mr Coleman referred to the very small impact of immigration on the size of the total working population.

There was little discussion on whether pay-as-you-go works. Sir Michael Ogden did suggest that, having retired at 21, and then gone back to work, he was very much for compulsory savings, and that he would be prepared to see this, if necessary, treated as a tax.

So, is living longer bad for the nation's wealth? There were a number of arguments against. Mr Lishman, as a care provider, was very positive about the individual consumers of care creating new financial markets, and about the contributions of older people as voluntary carers.

Mr Johnson pointed out that an ageing population does not imply a collapse of the stock market, and predicted that the overall impact might be equivalent to a slowing of GDP growth by 0.5% p.a. to 1% p.a.

Mr Kemp referred to improving technology, and Mr Nowell emphasised that an ageing population will be good for new suppliers. Mr Mullan pointed out that productivity has been rising by 2% p.a. over many years, and that future growth should be more than sufficient to provide improved living standards for the entire population.

There were no strong arguments made for the proposition that living longer is bad for the nation's wealth.

What I think that we should conclude from this is that:

— the demography of the country is changing — as it is in virtually all the of the developed world;
— the economy is inevitably changing; and
— people's perceptions are changing as well.

We can only make financial sense of the future if we:

— have the right management information;
— make the right decisions; and
— execute those decisions effectively.

Unlike the people of Sweden, Germany or Canada, our population appears to see things in very simple terms. We do not discuss the underlying demographics or economics. We have no language to do it. The real issues of the future, of:

— long-term developments in mortality, morbidity and productivity;
— inter-generational transfers of wealth; and
— the possible attitudes of future working generations to the funding of those in retirement or in care;

are not discussed. Why? Because we, the people who could communicate the issues in understandable terms, have not yet succeeded in doing it.

I call on the actuarial profession to find the language to communicate the issues.

Dr Harper referred to the substantial differences between cohorts in health, life employment and expectations. For these expectations to be *realistic*, they must be informed.

I commend the publicity given to the findings of the King's Fund Think-Tank on health, concerning the ability of people on below-average earnings to save for a pension — a model of clarity.

The U.K. profession has decided to tackle the issue of understanding and communicating the basic facts about a number of key areas:

— the size of the state pension;
— the impact of means testing on the incentive to save for a pension;
— unfunded pensions, both in the E.U. and in the U.K. public sector;
— longevity and the age of retirement; and
— the problems relating to converting cash to a pension for defined contribution schemes.

It has done this by setting up a Pensions Provision Task Force, to understand the issues, to publish papers, to arrange seminars for journalists, and to identify further research to be sponsored by the profession. The Task Force reports back to the profession here in Staple Inn on 12 December 2000, to start the discussion of these issues internally.

Changes in retirement age, the levels of pension, the extent to which long-term care is funded, pensions are paid for and work is provided, need a degree of public information and public support before they can be tackled. As Mr Mullan pointed out in his book *The Imaginary Timebomb*, and as he re-emphasised in the discussion, this information needs to be clear and to be unbiased by political agendas. Hyperbole has a place in creating interest and in motivating study, but it has no place in the formulation of policy. There is scope for research in many areas. It is good to see the commencement of the ESRC Sage Research Group 'Stimulating Social Policy in an Ageing Society', and we look forward, over time, to seeing the results from this. Much good work on research is started; much more needs to be done.

So I call on both the Government and the private sector, and, in particular, the insurance companies, the health sector and other areas where we are involved, to support the research that is necessary, and to find better ways of communicating the facts of an ageing population to our ageing population — both the options and the opportunities — so that decisions can be made from real knowledge, because decisions about the funding of pensions and long-term care commit present and future generations.

Growing old — older than any previous generation except, possibly, that of Methuselah (and I do not have any demographic information about Methuselah) — is a blessing, and it is not a worldwide phenomenon. Ageing populations exist in most of the developed world, but, at the other end of the spectrum, there is the phenomenon of the missing generations: the loss of whole generations to AIDS, effectively highlighted by the Presidential Address (Clark, 2001). Would it not be good to think that some proportion of the substantial intellectual effort and vigour that is going into our discussions of demographics, economics and social issues could be shared with our opposite numbers in Europe and the world, to benefit from similarities, and that some proportion of this could be applied to assist and support thinking about the issues facing African nations, such as Botswana? In Clark's (and Redington's) words: "to protect the future against the ravages of the present".

Reference

Clark, P.N.S. (2001). Address by the President of the Institute of Actuaries: 'Communication, culture and companionship', 25 September 2000. *B.A.J.* **7**, 1-32.

The President (Mr P. N. S. Clark, F.I.A.): I express my thanks, and the thanks of everybody here, to all those who have contributed to this discussion, particularly the official guests and other visitors. It is, as a number of speakers have said, a very key and vital topic. I take note of Mr Gould's, Sir Michael's and the closer's comments, that we, as a profession, and Mr David Kingston and I, as Presidents within the U.K. profession, should be more public in our comments. In order that we may make public comments, we need to be very sure of the facts. Mr Alan Fishman is Chairman of our newly formed Social Policy Board, and the closer is also a key member of that board. There is a great deal of work to be done, as has been indicated, to make sure that we are certain of our facts. There is no doubt that there is a very real need to make the public, to make society, aware of the issues that emerge from this sort of debate.

I ask you to join me in expressing thanks to all those who have taken part in this discussion.

WRITTEN CONTRIBUTIONS

Mr T. A. Salter (Institute Affiliate, who spoke at the meeting, and who subsequently submitted this amplified contribution as a replacement for what he said)**:** I wish to put forward two points for consideration. The first is the need for 'upward flexibility' in retirement age; and the second is the use of health risk management programmes to prolong the active life-span before the onset of permanent infirmity.

The general debate about the economic burden represented by an ageing population has tended to focus on the claims of the elderly on resources. Less attention has been given to what can be done to defer the premature substitution of retirement income for employment income, and to reduce the use by the elderly of medical and care services.

Our present social and economic arrangements are incapable of distinguishing between the 'dependent old' and the 'productive old'. We still have the costly anachronism of the normal retirement age, first introduced in Britain in 1859 for civil servants. Before that, people retired from their occupations when they could no longer conduct them effectively. See Thane (1978).

The origins of the British pensions system can be traced back, through the public records, to 1684, when the first public pension was granted to Martin Horsham, a landwaiter in the Port of London, who was " ... so much indisposed by a great melancholy that he is unfit for business". "Unfitness", we note, was the criterion, not chronological age. See Titmuss (1968).

The improvement in the health and productive capacity of older people, in this century, has emptied the definition of 'old age', implicit in the notion of the normal retirement age, of all meaning. What is needed is a flexible period of retirement choice, in present circumstances probably between ages 68 and 75, with provision for an earlier partial pension from age 65 or a full pension in case of incapacity.

Surveys, such as Walker (1982), show that people in employment after age 65 have a higher degree of job satisfaction than other age groups. It is hoped that many of them are enjoying what Mr David Kingston, in his Faculty Presidential Address (Kingston, 2001), described as "a period of less stressful and more flexible employment" (termed, by the Swiss, the 'Fourth Pillar' of pensions). What can be done to extend further the active life span of these older workers?

A number of studies carried out in the U.S.A. in recent years demonstrates a link between better health habits and significantly reduced morbidity. (Well known examples are the Control Data (Milliman & Robertson Inc, 1987) and Chrysler health risk management studies carried out by Milliman & Robertson. (Milliman & Robertson Inc & Staywell Health Managements Inc, 1995).)

Health risk management programmes for the elderly were neglected until recently, on the grounds that changes in health habits late in life would be difficult to achieve. Against this, it was argued that, as health expenditures on the elderly are so much higher, and the proximity of the onset of permanent infirmity so much closer, these programmes could actually be more effective than for younger people.

In a study carried out by Dr James Fries of Stanford University School of Medicine (Fries, 1991) and his colleagues, 6,000 Bank of America retirees were divided, at random, into three groups. The first received a low-cost, but well designed, health risk management programme, the second received survey questionnaires only, and the third were measured by medical expenses claims data. Health habit changes of about 10% to 20% were achieved in the experimental group relative to controls. Estimated medical costs and claims data showed cost reductions of 20% in the experimental group, compared with the control groups. The financial savings per subject, per year, were six or more times greater than the cost of the health risk management programme. See Leigh *et al.* (1990).

Fries argues that, as the use of illness prevention techniques increases, the time between birth and the onset of permanent infirmity will increase, so that the period of morbidity is compressed between an increasing age of onset of permanent infirmity and a more slowly increasing life expectancy. The compression of morbidity entails a delayed onset of infirmity and an extended healthy life-span, improving the quality of the years of life.

Fries has called for a national policy of illness prevention. If we had such a policy in the U.K., and if the age of onset of permanent infirmity can be raised more rapidly than life expectancy (estimated in the Government Actuary's 1998 national population projections to increase by about 5 years between 1998 and 2050), living longer could actually increase, not reduce, the nation's wealth.

References

Fries, J.F. (1991). *The workspan and the compression of morbidity, retirement and public policy*. Alicia H. Munnell (Ed.). National Academy of Social Insurance, U.S.A.

Kingston, T.D. (2001). Address by the President of the Faculty of Actuaries: 'A learning profession', 2 October 2000. *B.A.J.* **7,** 51-73.

Leigh, J.P., Richardson, N., Beck, R., Kerr, C., Harrington, H., Parcell, C. & Fries, J. (1990). *Randomization controlled study of a senior health promotion program.* The Bank of America study, U.S.A.

Milliman & Robertson Inc (1987). *Health risks and behavior: the impact on medical costs.* Control Data Corporation, U.S.A.

Milliman & Robertson Inc and Staywell Health Management Systems Inc (1995). *Health risks and their impact on medical costs*. A study in conjunction with Chrysler Corporation and the International Union, UAW, U.S.A.

Thane, P. (1978). The muddled history of retiring at 60 and 65. *New Society*, 3 August 1978.

Titmuss, R.M. (1968). Pensions and public servants: a study of the origins of the British pensions system. In *Commitment to welfare*. George Allen & Unwin.

Walker, A. (1982). The social consequences of early retirement. *The Political Quarterly*, **53**, No.1, January-March 1982.

Mr C. Shaw (Government Actuary's Department)**:**

POPULATION TRENDS IN THE 21ST CENTURY

Background

In common with virtually all other developed countries, the U.K. has been experiencing historically low levels of fertility for many years. If this continues, and providing that it is not offset by very high levels of net immigration, the population of the U.K. will peak in size sometime before 2050, and then start to decline. See Michaels (2000) and The Stationery Office (2000). The same prospect is in store for most other countries in the E.U., and for the developed world as a whole.

The most significant population development over the next 50 years will be a marked ageing of the population. The average age of the population will rise, the number and proportion of elderly people will increase, and the working age population will become much older. The consequences of population ageing are far reaching (for pension provision, health and care services for the elderly, employment and training, saving and consumption patterns, housing, etc.) and continue to be widely discussed (Dunnell, 2000).

A report from the United Nations Population Division (2000) addressed the question of whether higher levels of international migration could offset projected future population decline and population ageing in developed countries. The report has generated considerable media attention. At the same time, there has been increasing discussion of the pros and cons of encouraging immigration, with a view, in particular, of tackling skills shortages in the job market, culminating in the U.K. Government recently calling for a debate to begin on the benefits and challenges of managed migration.

With this background, the Government Actuary's Department (GAD) has been examining to what degree population decline and ageing are inevitable, and to what extent these trends might realistically be modified by changes in demographic behaviour. Unlike the U.N. work, GAD is examining the effects of fertility change as well as migration change. It is expected that the full results of this work will be published in the Office for National Statistics (ONS) quarterly journal *Population Trends* in March 2001. However, some early results are already available in Coleman (2000).

Projected future trends

Projected population trends are shown in Figure S.1. These projections are taken from GAD's latest (1998-based) population projections for the U.K. (The Stationery Office, 2000), but specially extended to the year 2100. The long-term fertility and migration assumptions underlying the principal projection are for an average family size of 1.8 children per woman, and for net inward migration of 95,000 persons per year. The high and low fertility variant projections assume 2.0 and 1.6 children per woman respectively, while the high and low migration variants assume annual net inward migration of 145,000 and 45,000 respectively. Figure S.1 shows the projections resulting from all possible combinations of these fertility and migration assumptions.

Under the principal projection, the population of the U.K. is projected to grow until 2036, and then gradually decline. However, it is clear from Figure S.1 that population decline is not inevitable. Conversely, the population will age substantially under any plausible set of future assumptions. The proportion of elderly people will only begin to level off, once the relatively large cohorts born following the Second World War and during the 1960s 'baby boom' have reached elderly ages. However, while substantial ageing is inevitable over the next 40 years, it is clear from the chart that the longer-term picture will depend crucially on future fertility levels.

Support ratios

As a result of population ageing, the demographic support ratio (here defined as the ratio of persons aged 15-64 to those aged 65 and over) in the principal projection is projected to decline from its present value of 4.2 to around 2.4 from 2040 onwards. Figure S.2 indicates how the long-term ratio might vary, given alternative levels of future migration or fertility. It is clear that migration is not a long-term solution to the problems of a falling support ratio. Even an annual inward flow of 250,000 per year (the U.K. has never to-date had an net inward flow of over 200,000 in one year) would not prevent the ratio falling below three. However, a comparable ratio could also be achieved by a comparatively modest increase in fertility to 2.0 children per woman.

Figure S.2 also indicates how the support ratio would change, given different retirement ages. For this work, we have, for convenience, regarded 15 to 64 as 'working age,' but Figure S.2 shows the ratios using higher upper boundaries. Clearly, this is a purely demographic conception of working age. The size of the economically active population could also, for example, be increased by raising workforce participation rates or by discouraging early retirements. (Coleman, 2000).

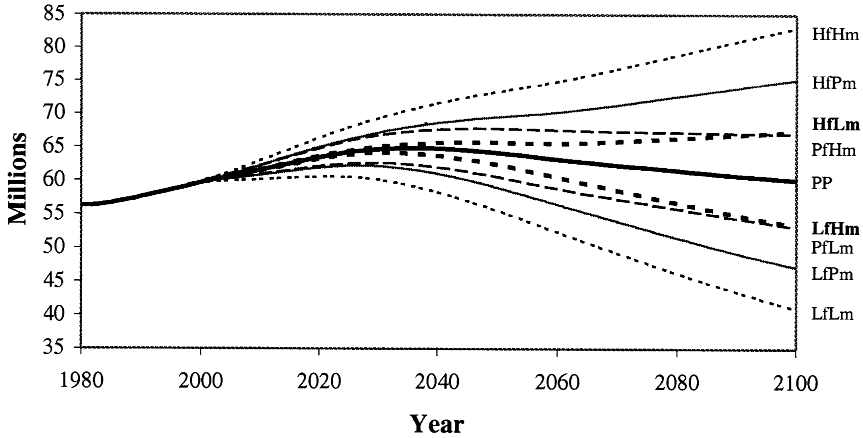


Figure S.1A. Total population of the U.K., 1980-2100

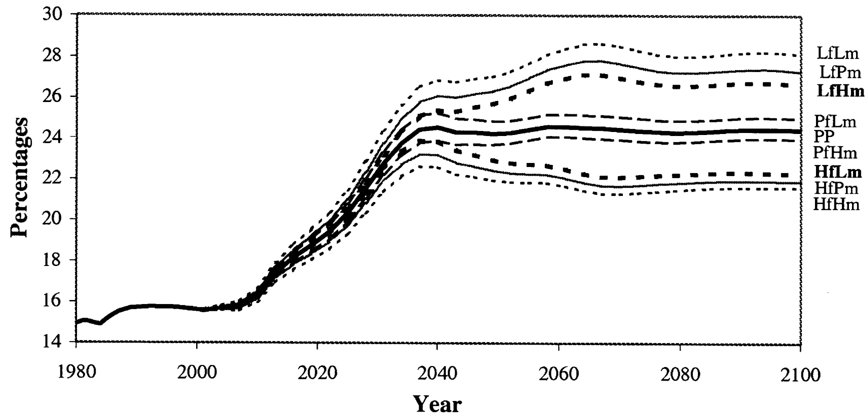


Figure S.1B. Proportion of the population aged 65 and over, 1980-2100

PP - Principal projection
HfHm - High fertility, High migration
HfPm - High fertility, Principal migration
HfLm - High fertility, Low migration
PfHm - Principal fertility, High migration
PfLm - Principal fertility, Low migration
LfHm - Low fertility, High migration
LfPm - Low fertility, Principal migration
LfLm - Low fertility, Low migration

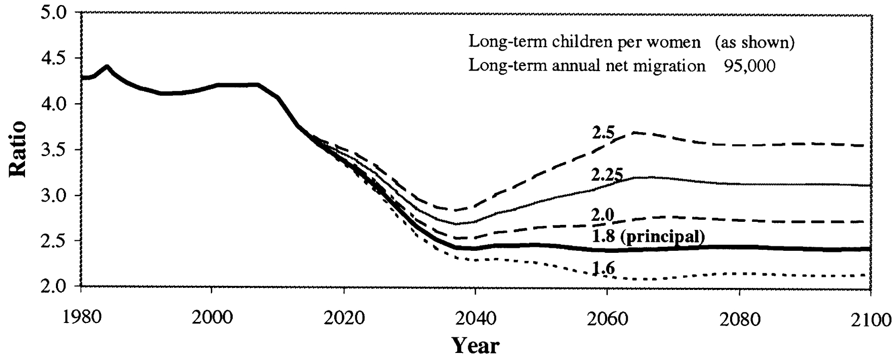


Figure S.2A. Support ratio with different fertility assumptions

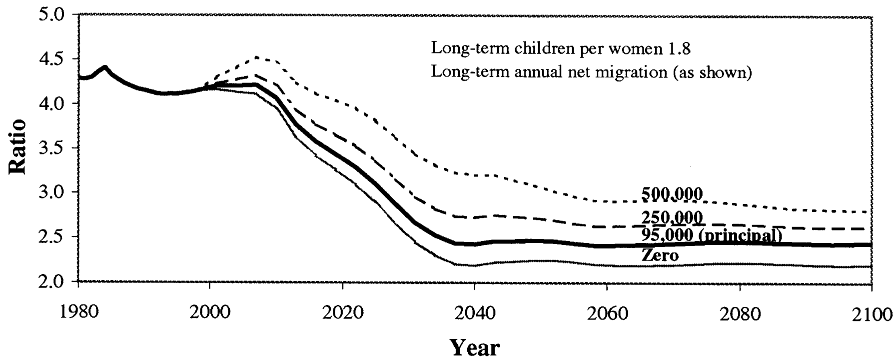


Figure S.2B. Support ratio with different migration assumptions

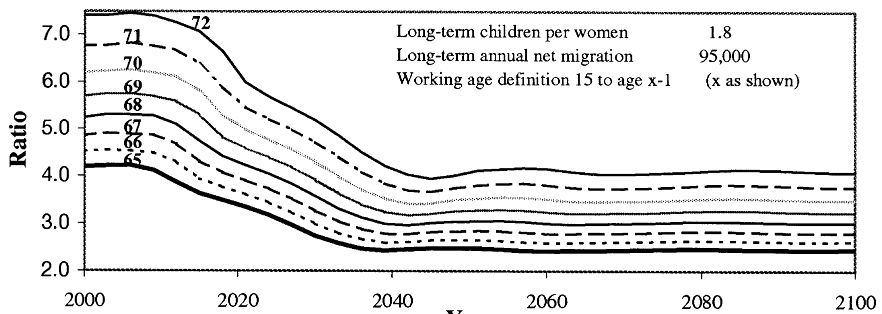


Figure S.2C. Support ratios with different upper boundaries for working age

REFERENCES

MICHAELS, A. (2000). The Government Actuary's 1998-based national population projections. *The Actuary*. October 2000.

THE STATIONERY OFFICE (2000). *1998-based national population projections*. ONS Series PP2 no.22.

DUNNELL, K. (2000). *Policy responses to population ageing and population decline — United Kingdom.* United Nations.

UNITED NATIONS (2000). *Replacement migration: is it a solution to declining and ageing populations?*

COLEMAN, D. (2000). *Who's afraid of low support ratios? A U.K. response to the U.N. Population Division report on 'Replacement Migration.'* United Nations.

The United Nations papers listed above are all available from the U.N. Population Division web site www.un.org/esa/population/popdecline.htm