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Population Ageing: an unavoidable future.

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Why population ageing is inevitable

The population of the whole world is getting older and the whole world, sooner or later, will have to manage the consequences. This is happening because birth rates have declined, or are declining, almost everywhere, and additionally because older people are surviving to enjoy longer lives. In most richer countries, birth and death rates started to decline in the 19th century or earlier. In the case of Japan, this transition has been particularly rapid and did not begin until the 20th century. In the poorer countries of the world, rapid declines in birth and death rates have only emerged in the last few decades and in a few the process has not begun. But most demographers believe that eventually the whole world will have few children, but long lives.

When death rates first fell, population started to grow fast. The world increased from 2 to 6 billion people in 100 years, and in the process acquired a newly youthful population with its attendant burdens of dependency. Now as populations mature, we are leaving that behind, the rich countries much sooner than the poor ones. We exchange youthful dependants for elderly ones. If the decline in family size halted so that women continued to have about two children on average (which most women say they want) then with current death rates the proportion of persons aged 65 and over in richer countries would eventually remain constant at about 20% of the total (with 19% aged 15 and under) compared with about 15% at present. Such a population would eventually remain constant in size.

With fertility at no more than the 'replacement' rate of just over two children, population, and the size of the workforce, will eventually cease to grow and would remain constant in size except for the contribution from continued decline in death rates. With fertility below this replacement rate, as it is everywhere in the developed world outside the US, population and workforce will eventually decline in numbers. In some countries where fertility is exceptionally low, as in Italy , Germany, Romania, Russia and a few others, deaths already exceed births. In the case of Italy and Germany, where birth rates have been low for a long time, population is prevented from declining only by continued high immigration (for details see Council of Europe, 2000 and Eurostat, 2000.)

Even if population decline is averted by replacement fertility, population ageing is bound to progress further, to an extent dependent on further improvements in survival. The lower the level at which fertility will stabilise, the more aged the eventual population structure will be. At an average family size of 1.8, about the level of the higher fertility European countries such as France and Norway, the percentage aged is about 23%. At 1.6. about the European average, it rises to about 28%. With continued lower fertility, like that seen in Japan and the Southern European countries, the proportion would rise to over 30%. Older populations and their problems will be a permanent feature of developed societies and by the end of this century for the whole world and thereafter for the whole future of the species.

With constant birth rates (at whatever level), eventually all future population ageing will arise from further declines in mortality. Although in those circumstances it seems reasonable to expect that vigorous life would also be extended and the boundaries of old age, and retirement, would need to be moved upwards accordingly, as they already have. Population ageing through longer survival brings, in part, its own solution, as long as most of the additional years of life are active ones.

Population ageing and its problems are consequences of growing up. They seem even worse than they are, because we are coming to the end of a short and transient period of unusually favourable age-structure. For about 50 years in the later 20th century. the more developed countries could enjoy the new benefits of low dependency from children together with the relatively low proportion of pensioners. This is because the birthrate had declined in most rich countries as early as the 1930s while small retired age-groups were inherited from an earlier period. That benevolent phase of population structure, a transitional phase between the youth dependency of the past and the aged dependency of the future, is now going. Resources once needed for dependent children must be transferred to the elderly as a new long-term population system is established. In the UK and elsewhere, this system has similar nominal dependency ratio to the previous one but different, less favourable composition.

Richer populations have moved from a position where the average age of consumption, once lower than the average age of production, is now higher, perhaps by 4 years. Maximum real support ratio arises when the two averages are the same, assuming an equal weighting of needs. The delivery channels of support will also be different. Families, which made and still make the greatest provision for children, will see the burden of transfers eased except in those richer countries where family support is traditionally more important for the elderly, notably Southern Europe and Japan.. A higher proportion of transfers to the elderly will pass through the state. Those populations which also have a tradition of family care for the elderly will suffer most unless they can change their system. (Ermisch and Ogawa)

What can we do about it?

The first point is to be quite clear that is no 'solution' to the problem of population ageing. There cannot be one short of a return to high rates of population growth or mass age-specific euthanasia. Immigration cannot solve problems of population ageing except at rates of immigration so high that they would generate economically and environmentally unsustainable population growth rates and permanently and radically change the cultural and ethnic composition of the host population (Coleman 2000). These answers are already well known to demographers.

Recent population projections by the United Nations have drawn attention to the future decline of population size and ageing of the population which is projected in low-fertility countries. Projections made over such a very long range of 50 years are bound to be substantially in error. Nonetheless by concentrating exclusively on the possible role of migration in ‘solving’ such problems they have caused widespread misunderstanding. The analysis focuses on the change in the ‘potential support ratio’, the ratio of the population of nominal old age dependants (aged 65 and over) to persons in the nominally ‘active’ population (aged 15-64). This ratio is about 4 or 5: 1 in most richer countries and is projected to fall to between 2 or 3 : 1 in 50 years.

Pensions, fiscal and workforce reforms.

What matters, however, is not demographic abstractions such as the potential support ratio but whether the future costs of dependency are sustainable in the economic and social environment of the future. Fiscal and workforce reforms within the demographic system offer many flexible and promising ways of adapting to population ageing and some of the measures are desirable in their own right. Given the powerful effects of economic growth, pensions reform and workforce change on the viability of economic systems, we may be in danger of missing the point by

concentrating too much on the outer demographic structure rather than on the fiscal, economic and workforce structures within it. What matters is whether an affordable system can be developed, not what the 'potential support ratios' are or may be in future.

Labour market, retirement and pension reforms, some already under way, together with future expectations of even modest economic growth and productivity, together offer the prospect of a reasonably effective and affordable management of this burden as long as birth rates are not too low, although definitely not a 'solution' (Daykin 1999). We need to consider first the 'real' support ratios, that is the actual number of taxpayers in relation to aged dependant people. In making such calculations we need to take into account the future reduction of dependency arising from the decline of the youthful dependant population. We need to keep in mind the successful negotiation of substantial population ageing already since the beginning of the century, where in the UK the percentage of persons over age 65 has already tripled from 5% to 15% without economic disaster. We should also recall the reality of actual retirement ages today which are already substantially below 'official' retirement age. Early retirement, late entry into the workforce and modest workforce participation rates already give us actual support ratios of about 2.5 taxpayers per pensioner, not the nominal 4.1 of the potential support ratio (Government Actuary's Dept 1999), without notable problems.

No one management factor can ameliorate the situation all by itself except with considerable discomfort. We therefore need to address simultaneously as many of these contributing factors as possible. For example. the European Commission's Annual Review of the Demographic Situation in Europe in 1995 (European Commission 1996) recognized the contribution of migration to further population increase but noted that recent immigration, at that time declining, had not been primarily related to economic needs. Unemployment among foreigners is indeed much higher than among the native population. It dismissed the notion that immigration could be an adequate compensation for population ageing, as it would require between 8 and 14 times even the then current high level of net immigration (7 million per year by 2024). Productivity growth required to meet the additional demands on the economy created from pensions would between 0.1% and 0.3% annually up to 2005, increasing to 0.5% per year by 2025. Such an additional diversion to pensions costs would, for example, reduce a real annual GDP growth rate from (say) 3% to 2.5%. Similar conclusions have been reached by other economists in the US (Lee et al 1988, Lee 2000).

In the EU, only 62% of the nominal 'active' population aged 15-64 is economically active. This is the lowest of any major industrial area in the world. An increase of workforce participation rates to the levels already achieved in Denmark, for example, or a return to the levels actually achieved among men in the 1960s, would go a long way to meet adverse future ageing changes. However, improvements in workforce participation rates cannot have further enhancing effect once they have reached their maximum level, beyond say 2020.

The most effective measures would relate to retirement age. While formal retirement age is 65 in most EU states, actual retirement age is about 58 or 59. Preservation of today's actual support ratio would require actual retirement age to rise by between 5 and 6 years, to between 65 and 66. On that basis, managing the additional costs of elderly dependency simply requires people to stop work when they are 'expected' to, at

some time in the future. For the UK itself, the scenarios indicate that an annual increase in work productivity rising to 0.8% by 2025 would be needed to cover additional costs of pensions transfers, in the absence of any other measures.

The incorporation of all dependency (all those not working of all ages, including children) into the equation further ameliorates the expectation of future dependency and future costs All these measures together could restore the future position to about the current level in most European countries at least up to 2020, according to an analysis published in the Economic Survey of the United Nations Economic Commission for Europe in 1999 (UN ECE 1999).

Demographic measures

The most 'strategic' responses involve the number of people themselves. Population ageing arises from changes in the birth rate and death rate. Only changes in the birth rate are likely to have any important effect in moderating population ageing without incurring the penalty of unsustainable population growth. Even so, replacement fertility - probably the best that can be hoped for - cannot increase the potential support ratio in mature populations to much more than 3 and would not avert some population decline in counties with long experience of below-replacement fertility. However, much lower birth rates, like those of Japan and Southern Europe today, would generate an age-structure which would be very difficult to manage with the measures described above. What prospect is there of the birth rate increasing in future?

There is little consensus on this point, despite an extensive literature (see, for example, the papers at a recent IUSSP seminar in Tokyo). There appear to be no limits to low fertility in the predominantly economic models which attempt to explain the variation of fertility (Golini 1998). Much of the reduction in the usual measures of fertility, as is well known, is due to the postponement of births. But in most populations the recovery of fertility rates at older ages has so far been insufficient to compensate for the decline in earlier ages, pointing to a fall in completed family size to below 2 children. Most researchers seem pessimistic about a return of fertility to replacement rates in European countries. Nonetheless, spontaneous recovery of fertility to levels closer to replacement might arise from a number of processes. The delay in childbearing has not yet ended in any country and we cannot foretell what will happen when it does. There may be general population-level tendencies to equilibrium. Enhanced welfare arrangements or other measures which improve the status of women, of the kind being considered by UK government, may remove obstacles to childbearing. There may be fundamental biological reasons why fertility is unlikely to drop permanently to very low levels.

The prospect of higher birth-rates is underpinned by the consistent finding, after 30 years of surveys , that women in Europe, at least, wish on average to have about 2 children (although seldom much more). Furthermore, actual birth rates can go up as well as down. Several Scandinavian countries have experienced rising birth rates since the 1980s, although that of Sweden took a sharp downturn in the mid-1990s. The TFR in Denmark has declined from its peak but in Norway it continues at over 1.8 (1.84 in 1999). In Ireland, TFR has remained at about 1.9 after falling below replacement level. Of the 15 EU countries plus Norway and Switzerland, 13 out of 17 had a higher TFR in 1999 than in 1998, although the increases were mostly tiny. Recent French data suggests a more substantial increase to 1.9 in early 2000.

Outside Europe, Australia, Canada, New Zealand and the US, none of which have ever seen low birth rates, increased their fertility from the 1980s. The United States continues at about replacement level, New Zealand a bit less. Although ethnic minority fertility is higher than average in those countries, the non-minority population also continue to have higher birth rates than almost any European countries. In the US (1999) TFR in all groups increased further from 1998 to 1999, from 2.059 overall to 2.075. In some populations richer and better educated women now have more children than average; female workforce participation is no longer an impediment to the third child, at least in Scandinavia thanks to state compensation measures. For whatever reason, most national and international projections expect a modest recovery in fertility although stopping short of replacement level.

If the birth rate does not increase spontaneously, is it responsive to public policy measures? Opinion here is strongly divided. Public policy effects upon the birth rate can be intended or (more usually in the West) unintended. Few western countries explicitly attempt to increase their birth rate although many are concerned that it is too low (see UN 2000). Most governments favour welfare policies for the family (welfare payments, workplace and housing policies etc) for welfare reasons only. While these might incidentally make it easier for women to have the number of children they say they want, most governments still shy away from overtly 'pronatalist' measures or rhetoric. Evaluation of the effects of welfare policies is difficult because there are so many forms of assistance from which families can benefit. Direct family allowances may only play a modest role. Some studies have found evidence only for a weak effect of welfare and fiscal changes on family size and the pattern of family formation (Gauthier and Hatzius 1997). Others report somewhat stronger effects. In the early 1980s French pronatalist measures were estimated to add about 0.3 to the average family size. The Swedish case in particular is claimed to be an example of precise, if temporary, response of marriage and birth rates and intervals to changes in relative financial advantage, including the fertility downturn following more recent welfare retrenchment and raised unemployment (Hoem and Hoem 2000). It is noteworthy that the only developed countries in the world with relatively high birth rates are those which also have high levels of childbearing outside marriage.

Family subsidies of various kinds, state childcare, preferential access to housing in the absence of an open housing market and other measures in the former Communist countries of Eastern Europe attempted simultaneously to promote female workforce participation and the birth rate. Although these policies are often dismissed as having had no more than a transient effect, they appear to have maintained East-block fertility at close to replacement level until their withdrawal during the post 1990 transition period (UNECE, 1999b). However these policies operated in a system of universally early marriage, limited access to modern contraception and few social outlets as alternatives to family life.

Elsewhere in the industrial world, there may be tenacious cultural impediments to the development of higher birth rates. Theories of 'gender equity' suggest that very low birth rates arise from unbalanced equality for women (McDonald 2000). If law, state subsidies and cultural preferences allow women some freedom to engage in work and higher education, but still load them unfairly with expectations to care for children, older relatives and the house by themselves, their time and energies will be so squeezed that childbearing will be very delayed and minimised. Paradoxically, this is

likely to happen in societies with a traditional 'familist' culture which considers the care of the elderly to be a family matter, resists state interference and consigns women to unequal domestic roles in which men play little part. The low level of fertility in the familist Southern European countries, and in Japan, seems unlikely to be reversed without a broader shift in personal and political culture, as well as fiscal measures to support the family and help women to combine work and child-care. Societies with high gender inequality will continue to suffer lower birth rates.

The Situation in the United Kingdom

The example of UK is somewhat anomalous. There is no tradition of population policy by national government in the United Kingdom. However some local authorities in Southern areas , which are the centres of economic growth and population growth (much of the latter from immigration) consider their areas to be 'full' and resist further house construction. There is much concern over the destruction of the natural environment by the spread of urban areas. However, the present government has announced a controversial re-evaluation of immigration policy, previously restrictive if ineffective. It considers that labour migration should be encouraged further to meet specific current shortages and possibly longer term general needs. Demographic concerns (to do with 'population ageing') have so far only been hinted at only rather vaguely.

The UK demographic regime is relatively benign; with a total fertility rate which has been around 1.7 - 1.8 since the 1970s. Population decline is not projected until after 2035 (partly because of existing high immigration); population projections by the official Government Actuary's Department forecast a long term potential support ratio of around 2.5 (today 4.1) with a median age of 42. To preserve today's potential support ratio would require formal retirement age (now 65/60) to increase to 72. These results underline the conclusion that substantial population ageing will be impossible to avoid. No plausible demographic change makes a big difference. None of these seem to this author to be obviously catastrophic. In the UK situation: in the UK 'demographic time-bombs' only go off in the media, not in real life.

No proposals have been suggested, or even considered , specifically addressed to the issue of increasing the birth-rate. They would be controversial and probably counter-productive. In fact the only UK government policy aimed at fertility is a specific target to reduce the (high) teenage conception rate by half by 2010, on welfare grounds (Social Exclusion Unit, 1999). If this were eventually successful in reducing teenage fertility to the EU average, it would bring the UK TFR closer to 1.6 than its current 1.7, which other things being equal would make future ageing trends worse.

The UK family support programmes and other welfare arrangements (e.g. subsidized 'social' housing) are aimed at welfare and have no demographic intentions although they may, of course, have unintended demographic consequences. By Northern European standards they are relatively modest but the UK nonetheless maintains a relatively high birth rate. Despite heavier subsidies and an explicitly pro-natalist programme, the birth rate of the UKs French neighbours has been much the same as that of the UK for many years. French colleagues have attributed this to an excess of careless, unplanned early childbearing in the UK, encouraged perhaps by specifically (unhelpful) British attitudes towards sex education and perverse incentives in the welfare system. UK birth-rates in the 15-19 age-group are certainly anomalously high, four times the EU average and large enough to distort the UK age-specific fertility profile compared with that of most other European countries.

Changes are nonetheless happening although motivated by welfare concerns for the family and the position of women, not to enhance the birth rate as such. The fortuitous intervention of the European Court, for example, obliged the UK government to equalise its pension entitlement age for men and women on sex-equality grounds. Welfare considerations suggested equalisation at 60. Demographic imperatives argued otherwise. Retirement age for both sexes will be fixed at 65 from 2010 - 2015, occasioning at least a notional marked improvement in UK dependency ratio trends. Under the UK's 'Foresight' programme launched in 1993, steps are also in hand to discourage unjustified disability-based early retirement and to encourage later working. Tax reliefs are being removed from private pensions taken before age 55, the tax system will make working beyond age 65 easier, legislation is being introduced, on US lines, to make age alone inadequate grounds for not hiring, or dismissing, labour. Both employers and government are likely to discourage favourable early retirement terms in occupational pension schemes (e.g. through the use of 'defined contribution', not 'defined benefit' schemes). Access to ill-health early retirement is likely to be subject to more stringent criteria. ‘Phased retirement' will be encouraged whereby the pensioner continues in part-time work, a response currently discouraged by 'final salary' pension schemes where pension is determined by the last level of salary, not the maximum ever reached. Workforce participation by lone parents (lone parenthood is very high in the UK) is being encouraged as a means of reducing welfare dependency.

While some countries have already started to move their retirement age back from the original fixed limits; to 67 in the US and to 65 in Italy and Japan, the UK has not yet decided on such action. However it can be said that the UK pensions situation is already much more favourable that that in continental Europe. The necessary shift away from primary dependency on state-run pay-as-you -go pension schemes is already far advanced. The solvency of these unfunded transfer schemes, as is well known, are particularly vulnerable to shifts in the population age-structure. Maintaining real pension levels will require substantial increases in payroll taxes. In the UK, state pensions are already linked to prices, not to wages. Furthermore a high proportion of workers are already members of funded occupational or private pension schemes and government policy aims to extend such coverage to an even higher proportion of the population. While funded schemes cannot entirely evade the consequences of popuation ageing they offer many advantages of non-funded state schemes.

Costs of ill -health among the elderly have not received the same attention as pensions. Some calculations, taking into account the reduction of child dependency costs , come to quite modest conclusions about the additional real expenditure, at least for the UK. 60% of the health expenditure on an individual is concentrated in the 12 months before death. 60% of health expenditure therefore depends on the annual number of deaths, which is projected to increase by 17.5% in the EU by 2025..

Conclusion

In conclusion, a substantial level of population ageing is here to stay. The 'easy' option of encouraging more immigration to address population ageing is demographically ineffective. It would be a short-term measure which enables hard but necessary decisions to be evaded and would bring serious cultural, social and political difficulties and economic costs. Excessive population ageing can be avoided if excessively low birth-rates are avoided. Prudent

administrative measures, of the kind noted above, should go hand in hand with policies to make the workplace, tax and welfare system more favourable to women, so they can fulfil ambitions, consistently stated in surveys, to have more than one child. But in some low-fertility countries, cultural changes in gender equity in the home, difficult for government to influence, will be essential. In different ways the US and the Scandinavian countries have shown the way, not for the sake of demographic engineering but to promote equity. Look after women's interests, it may be said, and population will look after itself.

References

Coleman, D. A. (2000). Who's afraid of low support ratios? A UK response to the UN Population Division Report on Replacement Migration. Expert Group Meeting on Policy Responses to Population Aging and Population Decline, New York, United Nations. http://www.un.org/esa/population/popdecline.htm

Council of Europe 2000. Demographic Developments in the Member States of the Council of Europe. Strasburg, Council of Europe

Daykin, C. D. and D. Lewis (1999). "A Crisis of Longer Life: Reforming Pension Systems." British Actuarial Journal **5, Part 1**(21): 55 - 113.

Ermisch, J. and N. Ogawa, Eds. (1994). The Family, the Market and the State in Ageing Societies. Oxford, Clarendon.

European Commission (1996). The Demographic Situation in the European Union 1995. Luxemburg, Office for Official Publications of the European Communities.

Eurostat (2000) Demographic Statistics 2000. Luxemburg, Office for Official Publications of the European Communities.

Gauthier, A. H. and J. Hatzius (1997). "Family Benefits and Fertility: an econometric analysis." Population Studies **51**(3): 295 - 306.

Golini, A. (1998). "How Low can Fertility Get? An empirical investigation." Population and Development Review **24**(1): 59 - 73.

Government Actuary (1999). National Insurance Fund Long Term Financial Estimates Cm 4406. London, The Stationery Office.

Hoem, B. (2000). "Entry into Motherhood in Sweden: the influence of economic factors on the rise and fall in fertility 1986 - 1997." Demographic Research www.demographic-research.org/volumes/vol2/4 **2**(Article 4 17 April 2000).

International Union for the Scientific Study of Population (IUSSP) (2001) Seminar on Low Fertility, Tokyo March 2001
http://demography.anu.edu.au/VirtualLibrary/ConferencePapers/IUSSP2001/Program.html

Lee, R.D (2000) Long-term population projections and the US social Security system . Population and Development Review 26, 1, 137 - 143

Lee, R. D., W. B. Arthur, et al., Eds. (1988). Economics of Changing Age Distributions in Developed Countries. Oxford, Clarendon Press.

McDonald, P. (2000). "Gender Equity in theories of fertility transition." Population and Development Review **26**(3): 427 - 440.

UNECE (1999). Demographic Ageing and the reform of Pension Systems in the ECE Region. Papers from the ECE Spring Seminar, May 1999. Economic Survey of Europe 1999 No 3. New York, United Nations. **3:** 45 - 113.

UNECE (1999b). Fertility Decline in the Transition Economies, 1982 - 1997: Political, Economic and Social Factors. Economic Survey of Europe 1999 No 1 Chapter 4. UNECE. New York and Geneva, United Nations. **1:** 181 - 194.

United Nations (2000) Expert Group Meeting on Policy Responses to Population Aging and Population Decline, New York, United Nations.
http://www.un.org/esa/population/popdecline.htm