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Ageing and Saving

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I. INTRODUCTION

The issue of ageing and saving has two distinct facets. On the one hand, there is the individual issue. Each of us is getting older and wants to make sure that our savings plans are appropriate. I term this the 'microeconomic' aspect of saving and ageing. At the same time, OECD economies are themselves ageing: people are living longer, the baby-boom generation, born after 1945, is passing through to middle age and, in some countries, fertility rates are below replacement levels. I term this the 'macroeconomic' aspect of ageing, and it will affect these economies in almost all dimensions: in savings and investment rates, in the growth rates of productivity, output and public spending, in wage structure, educational attainment and labour supply (Disney, 1996). And, of course, there are links between the microeconomic and macroeconomic facets of ageing: for example, as a country ages, with more elderly dependants relative to workers, it becomes harder to sustain the social security pension without higher taxes. In turn, a prospective decline in the social security pension may cause people to revise their individual or household saving and retirement strategies.

The growth of real incomes and wealth with age during the working life, and the prospect of a private (occupational) pension on retirement, promise a reasonably bright financial future for many people in a country such as Britain.

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Indeed, some studies of the United States suggest that many retirement pensioners are already better off financially than when they were at work.²

For others, however, the future may be less bright: in a relatively depressed labour market where 'skill requirements' and employment structure are changing rapidly, dismissal or redundancy in later life leads to poor re-employment prospects.³ Early job displacement therefore often leads to premature retirement from the labour market, a reduced occupational pension and, in Britain at least, the prospect of a state pension that is likely to be the least generous in Europe. In the 1980s, inequality *amongst* pensioners has increased, even though the average real income of pensioners has increased more rapidly than that of workers.⁴

Even for the better-off, growing living standards may be associated with a *perception* of greater insecurity in the future. Will there be a universal state pension in the future? How much is my occupational pension *really* worth?⁵ If I have invested in my house, or in a 'money purchase' pension scheme, or in Lloyds, do I face a risk of capital loss? And should I buy health-care insurance for late in life when I may require expensive hospital or residential care? Paradoxically, as the ability to buy insurance against many of the consequences of retirement (low incomes, the need for extra health care, etc.) has increased in line with the growing sophistication of insurance products, people's perception of insecurity has increased, not least because recent policies, and the stance now taken by both Conservative and Labour politicians, will increasingly shift responsibility for these financial decisions onto individuals themselves.⁶

It is not surprising that these microeconomic 'insecurities' of ageing coexist with the *macroeconomic* trend in ageing described previously: as mentioned, one obvious reason why countries have found it increasingly difficult to honour their commitments to pay generous social security pensions is that there are far more people over pensionable age to whom such pensions should be paid. Since social security systems are rarely fully funded or 'advance funded' (that is, in practice, current social security contributions pay current pensioners), then as the 'aged dependency ratio' (the ratio of people of pensionable age to people of working age) rises, so the capacity to pay social security pensions is diminished. And this diminution in turn enhances the individual uncertainty attached to prospective

² Calculating pension benefits from both public and private sources, relative to career average earnings, net of travel-to-work and other related costs. See Hurd and Shoven (1985) and Hurd (1990).

³ See Juhn (1992) and Juhn, Murphy and Pierce (1993). The determinants of retirement behaviour of men in the UK who do not belong to occupational pension schemes are considered by Disney, Meghir and Whitehouse (1994) and Meghir and Whitehouse (1995).

⁴ For the UK, see Dilnot, Disney, Johnson and Whitehouse (1994), Johnson and Stears (1995) and the evidence submitted to the Retirement Income Inquiry by the Institute for Fiscal Studies (Johnson, Disney and Stears, 1995). Hurd (1990) finds similar trends for the US.

⁵ On which, see Disney and Whitehouse (1996).

⁶ For a discussion of 'financial management strategies' in practice amongst the retired, and those close to retirement, see Finch and Elam (1995).

incomes.⁷ Nevertheless, it would be simplistic to 'blame' the social security financing crises that are arising in several European countries on the ageing of their population *per se* — commitments built up early in the lives of social security systems have often proven unsustainable long before the ageing of the population set in.

The distinction between the microeconomic and macroeconomic effects of ageing, and the interrelation between these two facets, are issues that I want to pursue here. I start in Section II with some cursory evidence as to the extent of demographic ageing in some representative OECD countries, and then look in Section III at the relationship across OECD economies between age structure on the one hand and household savings rates and growth rates on the other. By a heroic extrapolation, I want to 'predict' 30 years ahead to see what macroeconomic performance might look like as the OECD population ages. Being an economist, I also circumscribe the conclusions of this section with numerous caveats and reservations. I then return, in Section IV, to questions of individual behaviour and financial strategies in the context of an ageing population: in particular, whether they are consistent with these broad macroeconomic predictions. Inevitably, this evidence serves to complicate the issue: a key factor may be the existence of precautionary saving in the face of uncertainty associated with ageing. It is also important to look at actual transactions between generations, such as bequests (inheritances).

II. SOME DEMOGRAPHIC ILLUSTRATIONS

The overall demographic story among OECD countries shows a universal ageing of the population, with dramatic increases in the number of older people in some countries. The most stark statistic is this: in the period 1975-95, there were approximately four people aged 65 or over for every 10 aged 15 to 64 in the population of OECD countries (the ratio, 0.4, is known as the demographic aged dependency ratio). Projections to the year 2025 of the existing population show that there will be eight people aged 65 or over for every 10 aged 15 to 64 by that year in OECD countries — a doubling of the aged dependency ratio in 30 years (United Nations, 1991).

Of course, in calculating overall population trends and the size of the future labour force, estimates of future numbers of young people rely on projections of fertility rates, but the numbers of middle-aged and elderly people should be reasonably accurate in the absence of major life-threatening epidemics or

⁷ The prospect of reduced social security should induce people to raise their private saving, following the standard argument of Feldstein (1974), as should greater government indebtedness to finance pre-committed social security (Barro, 1974). But the prospect of greater uncertainty attached to social security should, if individuals are risk-averse, also raise private saving: for a discussion of this in the Italian context, see Brugiavini (1987) and Jappelli and Pagano (1994).

unexpectedly dramatic mortality improvements. Thus the key relationships are the *total* dependency ratio of those aged under 15 plus those aged 65 and over relative to those aged 15 to 64 (a standard definition which ignores differences in mandatory school-leaving ages across countries), and the *aged* dependency ratio defined above. Note the obvious points that many people of ‘working age’ may in fact be economically inactive, or sick or unemployed, whilst some of those aged 65 and over may still be working. Furthermore, not all of those aged 65 and over are entitled to a pension of their own. And, finally, note that trends over time in participation in paid work may swamp demographic changes (for example, in the UK, the rise in the labour-force participation of married women since 1945, and the significant decline in labour-force participation of men aged 50 and above). A more pertinent ‘economic’ measure of dependency may be the ‘support ratio’ of the economically active to the economically inactive, as defined, for example, by the number of contributors relative to pensioners in the social security system of a country.

What is of most interest in the present context is the differential rate of ageing of the population across OECD countries. The pie charts in Figure 1 illustrate the disparity in experiences of ageing across three countries, comparing population shares in 1990 and, as projected by the United Nations, in 2025.

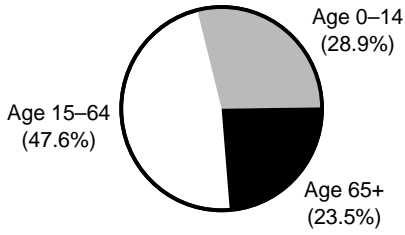
The UK exhibits a process of gradual ageing of the population, which has in fact taken place since 1945. The next decade sees an abatement of this process, but there is a jump in the aged dependency ratio when the post-war baby-boom cohort start to retire after about 2010. The UK population is projected to rise very slowly to the year 2025, by about 2 million, with an increase of over 25 per cent in those aged 65 and over (i.e. by 7.2 percentage points from a 1990 base of 23.5 per cent). The absolute size of the potential work-force aged 15 to 64 is almost constant. This pattern is not untypical of the northern European countries.

Italy offers an interesting contrast. Along with Denmark, it has one of the lowest fertility rates in Europe, as well as a sizeable baby-boom cohort due to retire. As a result, the population is actually projected to decline by the year 2025. The proportion aged 65 and over is projected to increase by almost 75 per cent (i.e. by 14.9 percentage points from a base of 20.7 per cent). Italy has the lowest participation rate of older workers among OECD economies (OECD, 1992). Note, too, that the Italian social security pension system had already gone into substantial deficit by the early 1990s, well before the dramatic ageing of the population set in, precipitating a series of economic and political crises which have only partially resolved the problems of financing government spending.

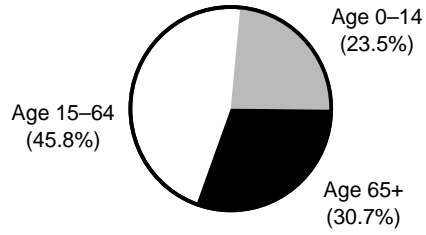
Finally, Japan is an interesting economy: one of the major post-war economic ‘success’ stories but with a demographic history slightly different from the ‘baby boom / bust’ of the European economies. It is also characterised by the highest rate of labour-force participation of older workers among OECD countries, with 44 per cent of workers aged 55 and over participating in 1990 (OECD, 1992). Even in Japan, however, the trend in labour-force participation among older

FIGURE 1
Demographic Trends in Selected Countries

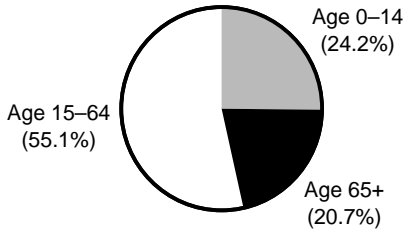
Population Shares: UK, 1990
Total population 57.2 million



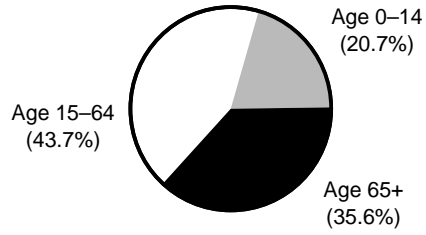
Population Shares: UK, 2025
Total population 59.7 million



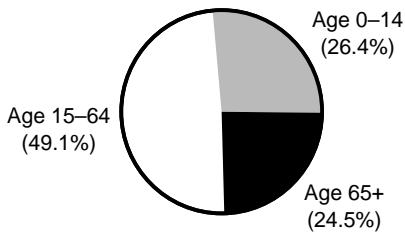
Population Shares: Italy, 1990
Total population 57.1 million



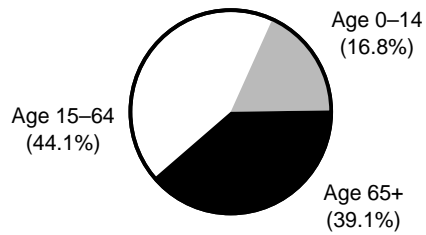
Population Shares: Italy, 2025
Total population 53.0 million



Population Shares: Japan, 1990
Total population 123.4 million



Population Shares: Japan, 2025
Total population 127.5 million



workers since the mid-1960s has been downward, albeit participation among that group had been largely stable from 1977 to 1990. The demographic trends in the charts show that the population of young people is projected to fall dramatically to the year 2025, while the number of people aged 65 and over rises by around 60 per cent between 1990 and 2025.

III. THE LIFE-CYCLE HYPOTHESIS OF SAVING

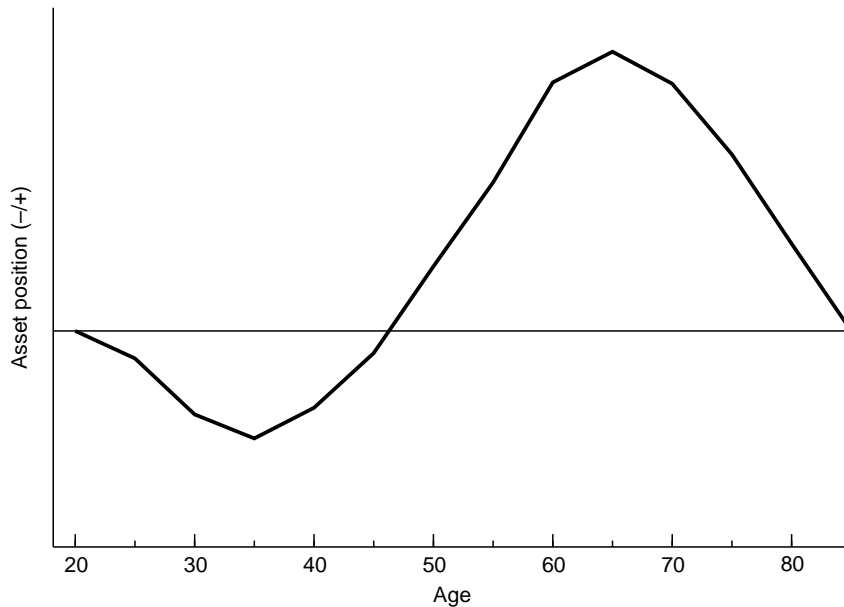
A natural context in which to think about the consequences of ageing for the macroeconomy is the *life-cycle hypothesis* (LCH) of saving established by Franco Modigliani and his collaborators (Ando and Modigliani, 1963; Modigliani and Brumberg, 1954; Modigliani, 1986). Assuming a well-functioning capital market, the individual consumer or household will attempt to smooth consumption expenditure over the lifetime, consuming more than income (dissaving) in the early part of the working life when wages are relatively low and when family formation and purchase of durables (notably housing acquisition) take place, and saving in later middle age as housing loans are paid off and children leave home. Assuming net wealth is maximised at retirement, no bequest motive and a well-functioning annuity market (provision of pensions), wealth is then reduced by dissaving to zero at the expected time of death.⁸ A stylised illustration of the wealth trajectory of a 'representative' household is given in Figure 2.⁹

How do demographic changes affect *aggregate* saving in this stylised version of the LCH of saving? A straightforward prediction is that a country with a higher aged dependency ratio will have a lower household savings rate, because there will be more elderly dissavers and fewer people of working age who are, on balance, net savers. There are, however, two caveats to this. First, if younger people expect to live longer after retirement, they may *increase* their saving to compensate for this expected longevity. This increased saving may offset the reduction in aggregate saving arising from the greater number of elderly people. Second, if each newer generation expects to have higher lifetime incomes, their

⁸ Clearly, if there is a strong bequest motive, assets will not be fully decumulated. This is discussed further below. Under certain assumptions concerning the utility function, and a perfect capital market, the individual will invest all his or her savings in annuities (Yaari, 1965). However, if there is a precautionary motive for saving, the mix of annuitised and financial wealth will change over the life cycle (Carroll and Samwick, 1993; Engen, 1993). An imperfectly-functioning annuity market will also affect precautionary saving (Davies, 1981).

⁹ In both Italy and Japan, it is argued that the life-cycle timing of saving for house purchase is very different from the 'Anglo-Saxon' model. For example, if, as in Italy, parents undertake house purchase for their children, the extent of net wealth accumulation in Figure 2 will be reduced. In countries such as Japan where greater saving for house purchase is required, the wealth trajectory may not even be single-peaked. But these points should not detract from the general relationship between household saving and aged dependency put forward in the text.

FIGURE 2
Asset Accumulation over the Life Cycle

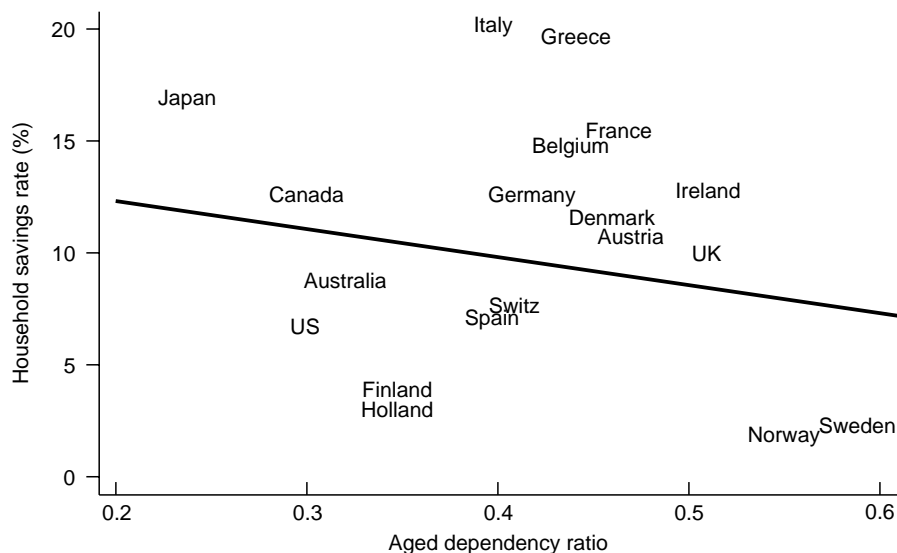


absolute saving may increase (once they reach the point of becoming net savers) so that aggregate saving also rises. These effects may offset, but should not eliminate, the predicted negative relationship between net saving and the aged dependency ratio.

Figure 3 provides a simple scattergram of net household savings rates averaged across 1977-92 for the 19 OECD countries that provide such data, against their average aged dependency ratios (ADRs) over the period 1975-95. Although there is a high degree of variation, it is apparent that there is a crude negative relationship between the two, as the stylised theory would predict. Running a simple bivariate regression between the two variables, a linear relationship is obtained, which is plotted on the chart. Doubling the ADR, say from 0.3 to 0.6, is associated with a reduction in the savings rate of about a third. The 'high' and 'low' savers among countries should be read off the chart controlling for their ADR. So Japan, Italy (averaged over the period) and even the UK save more, given their ratio. Conversely, the US, the Netherlands and the Scandinavian countries save less.¹⁰

¹⁰ There are, of course, a number of methods of measuring the savings rate. Countries where a high degree of institutional saving is done through, for example, pension funds or state-run provident institutions may report lower *household* savings rates. In countries where pensions are largely provided from state-run Pay-As-You-Go (PAYG) schemes, higher aged dependency is associated with higher tax rates.

FIGURE 3
**Household Savings Rate and Aged Dependency Ratio:
 19 OECD Countries, 1977-92**

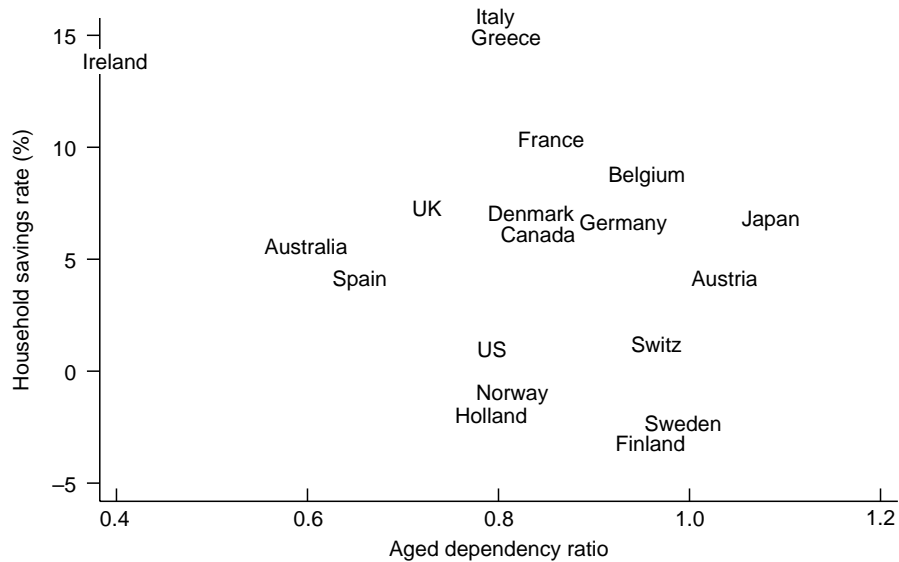


Now consider the following extrapolative experiment. Suppose that we have identified the correct, time-invariant, relationship between the variables and that the relation of each individual country to the underlying relationship (the ‘fixed effect’) is also time invariant. Now project what the household savings rates would be in the year 2025, given the respective ADRs of the various countries, which have aged to differing degrees. These are plotted in Figure 4. There are some interesting comparisons to be made with the earlier chart for 1977-92. First, note the change in the axes: the doubling of the aged dependency ratio and the reduction in general savings rates associated with the extrapolation of the ADR-savings relationship. Second, note that the ordering of countries’ savings rates has changed. An interesting comparison is that of Japan and the UK; as Japan’s ADR has overtaken that of the UK, the gap between the corresponding savings rates has narrowed; indeed, the extrapolation predicts that the UK will have a higher household savings rate than Japan in 2025.¹¹ Ireland, too, given its distinct demographic trend, changes its position in the ordering.

As can be seen from ‘eyeballing’ the chart, a simple bivariate cross-country regression of this kind is not very robust: indeed, the coefficient on the aged dependency ratio in the regression is not significant at the 5 per cent level and is

¹¹ A similar point about Japanese savings rates relative to other OECD countries is made in OECD (1990). However, the regression results in that report are even less robust than the simple bivariate model reported here.

FIGURE 4

Household Savings Rate and Aged Dependency Ratio: 19 OECD Countries, 2025

not necessarily different from zero. This does not refute the general observation, because a robust relationship between the two variables can be obtained in a multivariate panel model. Studies by Weil (1994) and Disney (1996) both show a strong relationship between savings rates and aged dependency ratios. Weil examines nine OECD countries over the period 1960-85 using centred five-year averages (since the demographic data change only slowly). He regresses private savings (national, net of government) and household savings on compositional measures of the population age structure and on controls including time dummies, average and current growth rates of income and income per capita. Table 1 gives Weil's results for household saving, for a sample of nine countries over centred averages. These are compared with my own calculations, based on the 19 sampled countries illustrated in Figure 4, using centred four-year averages for the period 1977-92, explicit age and youth dependency ratios, per capita current growth and average growth, a constant, $T - 1$ time dummies and (in the fixed-effect model) $N - 1$ country dummies.

In Weil's study, the proportion of youth has little effect on saving, and the proportion of working age is positively associated with the savings rate. There is a unitary negative elasticity of the proportion of elderly in the population on the savings ratio excluding country dummies, a result replicated in my own calculations in Column 2 of the table. Including country dummies strengthens the results considerably: Weil concludes that moving 1 per cent of the population

TABLE 1
Cross-Country Savings Regressions

Dependent variable: Country fixed effects:	(1)		(2)	
	ln (Household saving)		ln (Household saving)	
	<i>No</i>	<i>Yes</i>	<i>No</i>	<i>Yes</i>
<i>Young</i>	-0.002 (0.181)	0.018 (0.117)	0.178 (0.172)	0.753 (0.408)
<i>Working age</i>	0.290 (0.147)	0.424 (0.074)	—	—
<i>Old</i>	-1.00 (0.32)	-1.36 (0.41)	-0.957 (0.417)	-2.025 (0.855)
<i>Average per capita growth</i>	3.15 (2.29)	—	0.145 (0.065)	—
<i>Current per capita growth</i>	-0.178 (0.647)	0.379 (0.227)	0.009 (0.036)	0.013 (0.016)
<i>Log of per capita income</i>	-0.002 (0.048)	0.068 (0.045)	—	—
SEE	0.602	0.219	0.298	0.127
R ²	0.143	0.886	0.226	0.894
Number of countries	9	9	19	19
Number of time periods	6	6	4	4
Degrees of freedom	43	35	68	51

Notes:

Young = Column 1 — percentage aged 0–19 in population; Column 2 — percentage aged 0–14 / percentage aged 15–64.

Working age = Column 1 — percentage aged 20–64 in population.

Old = Column 1 — percentage aged 65 and over in population; Column 2 — percentage aged 65 and over / percentage aged 15–64.

Average per capita growth = Average rate of growth of per capita income over period.

Current per capita growth = Rate of growth of per capita income over each period.

Average growth, *Current growth* and *Log of per capita income* are normalised to zero for US 1985 in Column 1.

All regressions include time dummies; time period: Column 1 — 1960–85, Column 2 — 1977–92.

Sources: Column 1 — Weil, 1994, Table 1; Column 2 — own calculations in Disney (1996).

from the elderly age-group to the working age-group will reduce household saving by between 1.3 per cent and 1.8 per cent (depending on whether fixed country effects are included). The Column 2 result concerning the impact of the aged dependency ratio is, if anything, stronger than Weil's once fixed effects are included, although not quite as robust in terms of standard error. In Column 2, the youth dependency ratio is positively but weakly associated with the savings rate, perhaps reflecting higher permanent income expectations or anticipated bequests.

The other variables merit passing attention. In theory, average growth per capita over the *whole* time period is positively related to the savings rate only if

the age profile of the wealth-income ratio is assumed independent of the growth rate of the economy (see Modigliani (1986)). An impact of the *current* growth rate could be compatible with the impact of transitory income on savings, but the effect is not significant. An impact of the *level* of per capita income on the savings rate is not compatible with the LCH, at least in its simplest variant. Time dummies are significant, and it will be noted that the inclusion of country fixed effects improves the explanatory power of the equation fourfold.¹²

Orthodox economic theory would imply an even stronger relationship between the aged dependency ratio and the level of investment (fixed capital formation) in an economy. In the neo-classical growth model in a closed economy (Solow, 1956), lower saving directly implies lower investment, and indeed such a relationship would be predicted in a National Accounts framework, if the government sector is in balance. Within the LCH, the dissaving of the elderly involves a reduction in the *value* of their capital — whether as a reduction in the physical stock or as a reduction in the equity value which would appear as a reduced rate of capital formation. In an open economy, with international capital flows, capital will tend to flow to the country with the highest rate of return, and again an economy with an ageing population is unlikely to see buoyant investment, other things being equal. And, again, a negative statistical cross-country relationship can be confirmed from the data (Disney, 1996).

In passing, we can also look at the relationship between growth of output (GDP — gross domestic product) and ADR. Again in the neo-classical model of economic growth, the long-run rate of growth of an economy is independent of its savings rate and depends positively on the rates of growth of the labour force and of labour-force productivity. Thus, if an ageing population implies slower labour-force growth *and* slower productivity growth (there is little evidence of the latter relationship, however), GDP growth should also be lower. Out of equilibrium, savings rates may affect GDP growth by affecting the capital-labour ratio — indeed, in the absence of lower saving, slower population growth might imply too much saving and an economy characterised by ‘dynamic inefficiency’. This raises the fundamental issue of whether it matters, for social welfare, that an ageing population implies lower saving, a deceleration of investment growth and lower GDP growth. In any event, we can pursue the same extrapolative exercise from the observed negative relationship between GDP growth and the ADR across OECD countries for 1977-92, illustrated in Figure 5, and the results for the extrapolation to the year 2025 in Figure 6 again suggest slower growth across all the OECD countries, with much greater bunching of the countries

¹² Relative to the US, and for the period 1977-92, Japan, Germany, France, Italy, the UK, Austria, Belgium, Denmark and Greece had significantly higher household savings rates, and Finland and Holland significantly lower rates, *ceteris paribus*. The other seven countries had insignificantly different savings rates from that of the US.

FIGURE 5

GDP Growth and Aged Dependency Ratio: 24 OECD Countries, 1977-92

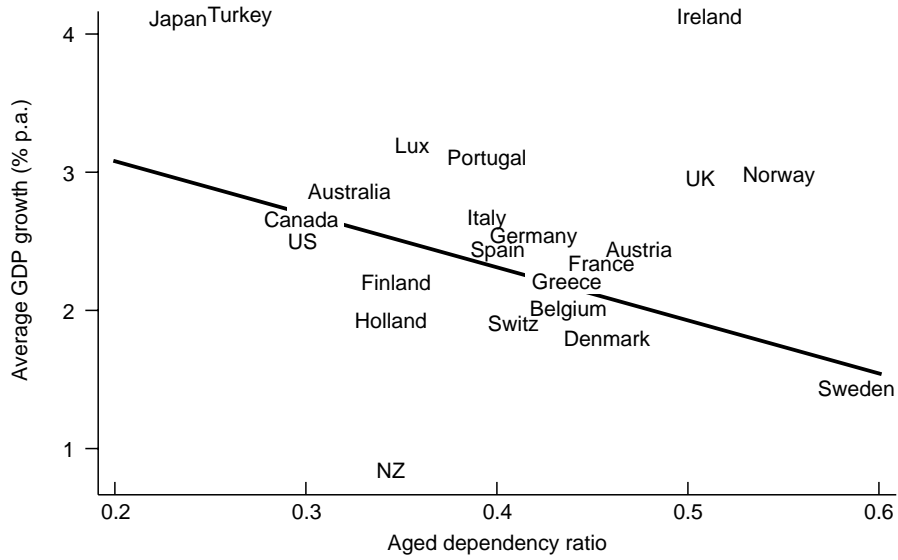
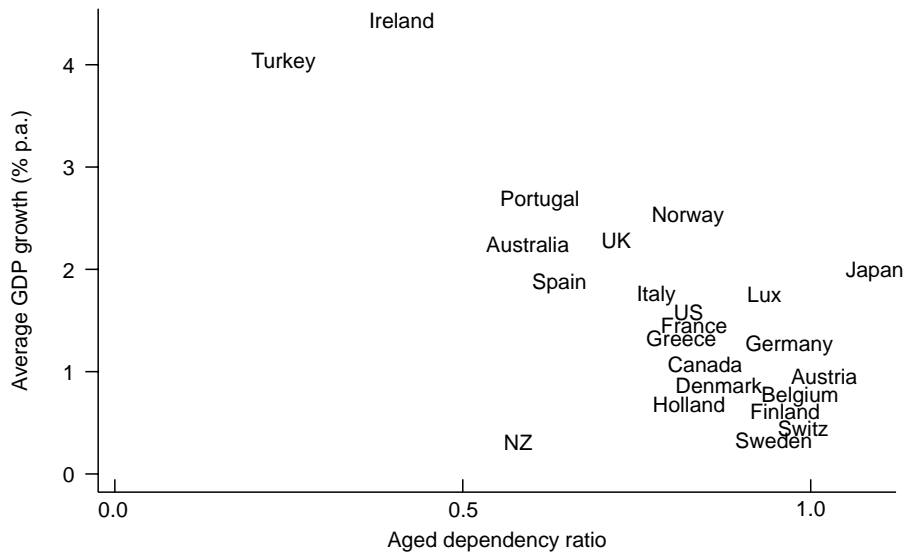


FIGURE 6

GDP Growth and Aged Dependency Ratio: 23 OECD Countries, 2025



around a lower growth rate — Japan ‘joining the bunch’ from previously being an outstanding performer, and the UK, by virtue of the slower rise in its ADR, appearing to be an above-average performer.

So, overall, there is confirmation that ageing populations are associated with variations in macroeconomic performance across OECD countries, as theory would suggest. Countries that did particularly ‘well’ in the period 1977-92 (that is, had higher saving and investment, and faster growth) regress towards the average by 2025. The UK, in contrast, does rather better than the average in 2025 compared with its rather mediocre performance in the 1977-92 period. It should, however, be emphasised again that the extrapolations are based on some strong assumptions and a rather simplistic model. Furthermore, GDP growth, savings rates and investment growth are all commonly-cited measures of economic performance but they are not measures of social welfare: economic theory would predict that just such relationships should appear in the data and might be consistent with optimal behaviour, given differences in aged dependency ratios across countries and changes over time.

IV. MICROECONOMIC EVIDENCE ON SAVING

None of these macroeconomic trends necessarily implies that the future living standards of today’s elderly, or indeed of people in later middle age, need decline. However, prospects for more youthful generations look less encouraging. First, social security programmes are being cut back and future state pensions are likely to be less generous. Second, the question arises of whether the occupational pension sector will survive in its present form. The ‘traditional’ occupational pension scheme in Britain bases pension benefits on final salary. It can be shown that such a practice disproportionately benefits older, longer-tenured workers.¹³ The economic argument for ‘wage tilt’ towards older workers, and the provision of final salary pensions, is as an incentive device designed to make younger workers work harder and remain with the company (Ippolito, 1994). However, in the UK, there are now more older workers and retirement pensioners in occupational pension plans, and fewer younger workers. Furthermore, membership of occupational pension schemes is voluntary, and many young workers have opted not to join their company pension plan, either purchasing a personal pension or opting to rejoin the State Earnings-Related Pension Scheme (SERPS).¹⁴ It is not apparent that this situation can be sustained in the context of a continued ageing of the population and growth of the number of retirement pensioners, as attempts to finance

¹³ This is known as ‘backloading’ of pension accruals, i.e. accrual of pension rights is not proportionate to the amount put in each year in a final salary plan. See, *inter alia*, Bodie, Macus and Merton (1988), Ippolito (1985) and Disney and Whitehouse (1996).

¹⁴ See Disney and Stears (1996).

continued generous levels of benefits to long-tenured members (and generous early retirement provisions as a means of cheaply ‘downsizing’ companies and institutions) may induce exiting behaviour from pension schemes by younger participants. So ageing work-forces may also lead companies to reconsider the nature of their pension schemes.

There is, however, another issue, on which I concentrate in this section. Does the microeconomic evidence of individual behaviour, from individual datasets rather than cross-country aggregate comparisons, square with the broad macroeconomic predictions of the previous analysis? For example, do the time paths of individual wealth holdings imitate the stylised time path in Figure 2? Do people smooth consumption across income variations over time, as suggested by the theory? And do elderly people run down their assets to close to zero? To the extent that individual behaviour is inconsistent with the stylised model, the macroeconomic predictions may fail to materialise.

Studies of individuals across a variety of countries and datasets have suggested a number of findings. First, people do not completely ‘smooth’ their consumption between working periods and retirement, where there appears to be a dip in consumption expenditure, even allowing for reductions in expenditure on goods that are complementary to work (such as travel and work clothing).¹⁵

Second, people do not completely annuitise their wealth at retirement: they engage in precautionary saving and in accruing wealth that is potentially bequeathable, such as housing and financial assets. Indeed, some people exhibit behaviour consistent with the idea that they would prefer less of their wealth to be tied up in the form of saving for retirement (primarily pension wealth) and more in the form of bequeathable assets (Bernheim, 1991).

Third, people continue to be net savers long into their retirement period. This seems particularly prevalent in Japan (Ando, Moro, Cordoba and Garlando, 1995). This suggests either a strong bequest motive, or a strong insurance motive — people hold onto assets late into life in case of unanticipated expenditures and, particularly, the possibility of expensive nursing or medical care. There is evidence that housing assets in particular perform this role: elderly people are reluctant to leave the ‘family house’, even if it is expensive to maintain, since they see it both as a potential bequest and as a means of retaining attention from children by visits etc.¹⁶ In addition to serving as a potential bequeathable asset, housing functions as an insurance asset which could be sold if expensive health care is required late in life (Skinner, 1991).¹⁷ (This is why the prospect of selling the family home in retirement to finance expenditure in retirement has proved such a political ‘hot potato’ to the government in Britain in recent months.)

¹⁵ See Banks, Blundell and Tanner (1995).

¹⁶ This is related to the so-called ‘strategic bequest’ motive: see Bernheim, Shleifer and Summers (1985).

¹⁷ In any event, the annuity value of a house sale is fairly small, at least until a person is into their mid-seventies. See Skinner (1993).

Some evidence that elderly people continue to hold assets in the form of housing in Britain, while being prepared to run down other assets, is obtained by Disney, Gallagher and Henley (1995) using data from the 1988-89 Retirement Survey. Table 2 shows that owner-occupiers tend to maintain the value of their housing stock well into their seventies, while allowing their stock of financial assets to decline. Interestingly, renters, who are on average considerably poorer, seem to maintain their stock of financial assets longer, presumably again as a form of precautionary saving. So, many people, on death, will be bequeathing a house to their surviving relatives, whether the widow / widower or children.

But two puzzles remain to be explained. First, why do people cut their consumption on retirement? Second, why does the macroeconomic evidence suggest that countries with aged populations have lower savings rates, while the microeconomic evidence suggests that people continue to hold assets well into retirement?

Cutting consumption on retirement may stem from several factors. One is that people become more 'risk-averse' on retirement — the prospect of unexpected shocks to income or expenditure is no longer cushioned by the possibility of working harder and deriving extra income. Second, retirement income may be less than anticipated, as suggested by Banks, Blundell and Tanner (1995). Evidence for this is contained in the Retirement Survey dataset for Britain, where a significant number of pensioners (particularly occupational pensioners) report themselves 'disappointed' *ex post* with their retirement income. Third, final retirement from the labour market may take place earlier than people anticipate: in other words, people have incorrect retirement expectations.¹⁸ The second question that was posed above concerns the discrepancy between the *macroeconomic* (cross-country) evidence that aged populations dissave and the *microeconomic* (individual) evidence that older people do not dissave as fast as Figure 2 would predict. Some writers, such as Weil (1994), have suggested that we should look more carefully at both actual and potential intergenerational transfers — notably, at bequests — and he provides one reconciliation of the evidence. In Weil's story, the elderly do indeed continue to save, with the intention of bequeathing to their children. On receipt of the bequest, the children will, of course, consume more (even though they would continue to be net savers out of their own income). But the additional 'twist' to the story is that potential recipients of bequests consume their bequest *in advance* of receiving it — if they expect to receive the family home in a few years, they may not defer the purchase of the new car or the new kitchen. Weil's evidence from the US Panel Survey of Income Dynamics suggests that families that receive a bequest increase their consumption by, on average, 10.4 per cent. This is not surprising

¹⁸ Bernheim (1989) fails to confirm this last hypothesis for the US, but it has not as yet been tested on British data. Current work at the Institute for Fiscal Studies on the 1994-95 reinterview data for the Retirement Survey may shed some light on this.

TABLE 2
 Mean Level and Standard Deviation of All Financial Assets and of Housing and Life Insurance, by Tenure Type and Age, 1988

Tenure and asset type		Pounds			
		Age			All
		55-65	65-69	70+	
<i>Owners</i>					
All financial assets	Mean	9,735	10,661	6,795	9,751
	Standard deviation	11,474	11,963	8,839	11,450
Housing and life insurance	Mean	85,215	79,906	81,973	83,136
	Standard deviation	57,590	56,705	57,635	57,302
<i>Renters</i>					
All financial assets	Mean	3,353	3,032	3,262	3,309
	Standard deviation	6,748	6,130	7,583	6,592
Housing and life insurance	Mean	1,230	412	30	773
	Standard deviation	8,656	4,686	256	6,769

Source: Disney, Gallagher and Henley, 1995.

but, more intriguingly, families that *expect* to receive a bequest increase their consumption by 4.8 per cent. Net saving is lower in countries with higher aged dependency ratios not because there are more dissavers after retirement, but because children are spending their inheritances in advance!

Thus there is a more complicated story concerning intergenerational transactions, heightened by population ageing. Greater uncertainty among the elderly, and those nearing retirement, may lead them to raise their saving, especially if they care about succeeding generations. This serves to forestall the fall in saving predicted by the stylised economic model. But the young anticipate that the greater saving will give them greater private sector wealth and so (notwithstanding the prospect of lower pension benefits when *they* retire) they proceed to maintain consumption by using actual and potential bequests. Little wonder that the prospect of paying for long-term health care out of the potential bequeathable assets (such as the sale of family homes) has created so much political heat and a demand for some adequate means of 'protecting' these assets.

V. CONCLUSION

I have argued that macroeconomic evidence associates ageing populations with lower savings rates, slower investment growth and a reduced rate of GDP

growth. These cross-country relationships can be vindicated by more robust regressions based on panel data. Interpolations of the cross-country relationships to the year 2025 suggest some interesting changes in macroeconomic performance and in the relative ranking of OECD countries. Some of these changes will have implications for individual behaviour.

However, the evidence from individual data (mostly, at present, for the US) suggests that the life-cycle hypothesis of saving implicit in the cross-country predictions concerning the effect of ageing populations on saving has weaknesses, particularly in explaining the saving behaviour of the elderly, who do not dissave to the extent required by a stylised version of the theory. We need a better understanding of household savings behaviour and, in particular, of how intrafamilial and intergenerational transactions motivate behaviour. In an 'ideal' setting, the young would be prepared to pay generous social security benefits to the current old with lower incomes and provide support for long-term health care. The more affluent current elderly and those nearing retirement age will bequeath much of their wealth to their children, which will permit those children to obtain a reasonable standard of living despite the prospective cut-backs in social security. Of course, consideration of the extended family as an internal insurance market is an old concept, pre-dating the development of social security systems and sophisticated financial markets. It would be a paradox if the challenge of financing ageing populations led to a restoration of an emphasis on such intrafamilial transactions.

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