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The Coming Demographic Transition: Will We Treat Future Generations Fairly?

In coming decades, many forces will shape our economy and our society, but in all likelihood no single factor will have as pervasive an effect as the aging of our population. In 2008, as the first members of the baby-boom generation reach the minimum age for receiving Social Security benefits, there will be about five working-age people (between the ages of twenty and sixty-four) in the United States for each person aged sixty-five and older, and those sixty-five and older will make up about 12 percent of the U.S. population. Those statistics are set to change rapidly, at least relative to the speed with which one thinks of demographic changes as usually taking place. For example, according to the intermediate projections of the Social Security Trustees, by 2030--by which time most of the baby boomers will have retired--the ratio of those of working age to those sixty-five and older will have fallen from five to about three. By that time, older Americans will constitute about 19 percent of the U.S. population, a greater share than of the population of Florida today.

This coming demographic transition is the result both of the reduction in fertility that followed the post-World War II baby boom and of ongoing increases in life expectancy. Although demographers expect U.S. fertility rates to remain close to current levels for the foreseeable future, life expectancy is projected to continue rising. As a consequence, the anticipated increase in the share of the population aged sixty-five or older is not simply the result of the retirement of the baby boomers; the "pig in a python" image often used to describe the effects of that generation on U.S. demographics is misleading. Instead, over the next few decades the U.S. population is expected to become progressively older and remain so, even as the baby-boom generation passes from the scene. As you may know, population aging is also occurring in many other countries. Indeed, many of these countries are further along than the United States in this process and have already begun to experience more fully some of its social and economic implications.

Even a practitioner of the dismal science like me would find it difficult to describe increasing life expectancy as bad news. Longer, healthier lives will provide many benefits for individuals, families, and society as a whole. However, an aging population also creates some important economic challenges. For example, many observers have noted the difficult choices that aging will create for fiscal policy makers in the years to come, and I will briefly note some of those budgetary issues today. But the implications of demographic change can also be viewed from a broader economic perspective. As I will

discuss, the broader perspective shows clearly that adequate preparation for the coming demographic transition may well involve significant adjustments in our patterns of consumption, work effort, and saving. Ultimately, the extent of these adjustments depends on how we choose--either explicitly or implicitly--to distribute the economic burdens of the aging of our population across generations. Inherent in that choice are questions of intergenerational equity and economic efficiency, questions that are difficult to answer definitively but are nevertheless among the most critical that we face as a nation.

Demographic Change and the Federal Budget

As I have already mentioned, the coming demographic transition will have a major impact on the federal budget, beginning not so very far in the future and continuing for many decades. Although demographic change will affect many aspects of the government's budget, the most dramatic effects will be seen in the Social Security and Medicare programs, which provide income support and medical care for retirees and which have until now been funded largely on a pay-as-you-go basis. Under current law, spending on these two programs alone will increase from about 7 percent of the U.S. gross domestic product (GDP) today to almost 13 percent of GDP by 2030 and to more than 15 percent of the nation's output by 2050. The outlook for Medicare is particularly sobering because it reflects not only an increasing number of retirees but also the expectation that Medicare expenditures per beneficiary will continue to rise faster than per capita GDP. For example, the Medicare trustees' intermediate projections have Medicare spending growing from about 3 percent of GDP today to about 9 percent in 2050--a larger share of national output than is currently devoted to Social Security and Medicare together.

The fiscal consequences of these trends are large and unavoidable. As the population ages, the nation will have to choose among higher taxes, less non-entitlement spending, a reduction in outlays for entitlement programs, a sharply higher budget deficit, or some combination thereof. To get a sense of the magnitudes involved, suppose that we tried to finance projected entitlement spending entirely by revenue increases. In that case, the taxes collected by the federal government would have to rise from about 18 percent of GDP today to about 24 percent of GDP in 2030, an increase of one-third in the tax burden over the next twenty-five years, with more increases to follow. (This calculation ignores the possible effects of higher tax rates on economic activity, an issue to which I will return later.) Alternatively, financing the projected increase in entitlement spending entirely by reducing outlays in other areas would require that spending for programs other than Medicare and Social Security be cut by about half, relative to GDP, from its current value of 12 percent of GDP today to about 6 percent of GDP by 2030. In today's terms, this action would be equivalent to a budget cut of approximately \$700 billion in non-entitlement spending.

Besides tax increases, spending cuts, or reform of the major entitlement programs, the fourth possible fiscal response to population aging is to accommodate a portion of rising entitlement obligations through increases in the federal budget deficit. The economic costs and risks posed by large deficits have been frequently discussed and I will not repeat those points today. Instead, I will only observe that, among the possible effects, increases in the deficit (and, as a result, in the national debt) would shift the burden of paying for government spending from the present to the future. Consequently, the choices that fiscal policy makers make with respect to these programs will be a crucial determinant of the way the economic burden of an aging population is distributed between the current generation and the

generations that will follow.

A Broader Economic and Generational Perspective

Indeed, framing the issue in generational terms highlights the fact that the economic implications of the coming demographic transition go well beyond standard considerations of fiscal policy and government finance, important as those are. For reasons that I will explain in a moment, the aging of the population is likely to lead to lower average living standards than those that would have been experienced without this demographic change. How that burden of lower living standards is divided between the present and the future has important implications for both intergenerational fairness and economic efficiency.

Why will the coming demographic transition carry a cost in terms of long-run living standards? Assuming it unfolds as expected, the projected aging of the population implies a decline over time in the share of the overall population that is of working age and thus, presumably, in the share of the population that is employed. For any given level of output *per worker* that might be attained at some future date, this decline in the share of people working implies that the level of output *per person* must be lower than it otherwise would have been. In a sense, each worker's output will have to be shared among more people. Thus, all else being the same, the expected decline in labor force participation will reduce per capita real GDP and thus per capita consumption relative to what they would have been without population aging. These reductions in output and consumption per person represent an economic burden created by the demographic transition.

Although some adverse effect of population aging on future per capita output and consumption is probably inevitable, actions that we take today, in both the public and the private spheres, have the potential to mitigate those effects. One such action would be to find ways to increase our national saving rate. If the extra savings were used to increase the nation's capital stock--the quantity of plant and equipment available for use by workers--then future workers would be more productive, ameliorating the anticipated effects on per capita output and consumption. Alternatively, using extra saving to acquire financial assets abroad (or to reduce foreign obligations) would also increase the resources available in the future.

By saving more today, we can reduce the future burden of demographic change. However, as any economist will tell you, there is no such thing as a free lunch. Saving more requires that we consume less (to free up the needed resources) or work more (to increase the amount of output available to dedicate to such activities). Either case entails some sacrifice on the part of the current generation. Consequently, a tradeoff exists: We can mitigate the adverse effect of the aging population on future generations but only by foregoing consumption or leisure today. This analysis is simple, but it shows why the coming demographic transition has economic implications that go well beyond the effect of aging on the federal budget.

In recent work, economists at the Board of Governors have used a stylized model to get a rough estimate of the magnitudes of the intergenerational tradeoffs that we face.¹ Their analysis takes as a starting point a baseline scenario in which U.S. demographics remain (hypothetically) the same in the future as they are today. In this counterfactual scenario, the ratio of workers to the overall population is assumed to

remain at its current level over time and per capita consumption grows with productivity. Now in reality, as I have noted, an aging population will reduce labor force participation, so the likely future trajectory of per capita consumption over time lies below that implied by the baseline scenario that assumes away the demographic change. The shape of the actual consumption trajectory depends, however, on the saving behavior of the current generation. If today's saving rate is low, then the current generation can enjoy consumption close to what it would have been if the aging issue did not exist. However, in this case, the burden on future generations will be relatively great. Alternatively, the current generation could consume less and save more, which would allow the consumption of future generations to be closer to what it would have been in the absence of population aging.

How big are these effects? To assess magnitudes, the Board economists first examined the case in which the nation saves at its current rate for the next twenty years, thereby largely insulating the baby-boom generation from the effects of the coming demographic transition. After that, they assumed, consumption falls and saving rates rise, with all future generations experiencing the same percentage reduction in consumption relative to the baseline in which no population aging occurs. Their rough calculations suggest that, in this case, the per capita consumption of future generations would be about 14 percent less than what it would have been in the absence of demographic change.

For comparison, they next considered the case in which the burden of demographic change is shared more equally among current and future generations. They considered a case in which the national saving rate, instead of staying at its current level for the next twenty years, rises immediately. Further, they asked by how much today's saving rate would have to increase to lead to equal burden-sharing among current and future generations. ("Equal burden-sharing" is interpreted to mean that the current generation and all future generations experience the same percentage reduction in per capita consumption relative to the baseline scenario without population aging.) They found that equal burden-sharing across generations could be achieved by an immediate reduction in per capita consumption on the order of 4 percent (or, since consumption is about two-thirds of output, by an increase in national saving of about 3 percentage points.) This case obviously involves greater sacrifice by the current generation, but the payoff is that all future generations enjoy per capita consumption that is only 4 percent, rather than 14 percent, below what it would have been in the absence of population aging. The large improvement in the estimated living standards of future generations arises because of the extra capital bequeathed to them by virtue of the current generation's assumed higher rate of saving.

These numbers shouldn't be taken literally but the basic lesson is surely right--that the decisions that we make over the next few decades will matter greatly for the living standards of our children and grandchildren. If we don't begin soon to provide for the coming demographic transition, the relative burden on future generations may be significantly greater than it otherwise could have been.²

At the heart of the choices our elected representatives will have to make regarding the distribution of these costs across generations will be an issue of fairness: What responsibility do we, who are alive today, have to future generations? What will constitute ethical and fair treatment of those generations, who are not present today to speak for themselves? If current trends continue, the typical U.S. worker will be considerably more productive several decades from now. Thus, one might argue that letting

future generations bear the burden of population aging is appropriate, as they will likely be richer than we are even taking that burden into account. On the other hand, I suspect that many people would agree that a fair outcome should involve the current generation shouldering at least some of that burden, especially in light of the sacrifices that previous generations made to give us the prosperity we enjoy today.

The choice of which generations should bear the burden of population aging has consequences for economic efficiency as well as for intergenerational equity. If we decide to pass the burden on to future generations--that is, if we neither increase saving now nor reduce the benefits to be paid in the future by Social Security and Medicare--then the children and grandchildren of the baby boomers are likely to face much higher tax rates. A large increase in tax rates would surely have adverse effects on a wide range of economic incentives, including the incentives to work and save, which would hamper economic performance. Alternatively, to avoid large tax increases, the government could decide to sharply reduce non-entitlement spending in the future. However, such actions might also have important social costs that need to be taken into consideration.

Sharing the Burden of Population Aging

If, as a nation, we were to accept the premise that the baby-boom generation should share at least some of the burden of population aging, what policy steps might be implied? As I have already noted, from a broad economic perspective, the most useful actions are likely to be those that promote national saving. Perhaps the most straightforward way to raise national saving--although not a politically easy one--is to reduce the government's current and projected budget deficits. To the extent that reduced government borrowing allows more private saving to be used for capital formation or to acquire foreign assets, future U.S. output and income will be enhanced and the future burdens associated with demographic change will be smaller.

Increasing private saving, which is the saving of both the corporate sector and the household sector, is likewise desirable. Corporate saving, in the form of retained earnings, is currently at relatively high levels, but household saving rates are exceptionally low.³ A broad-based increase in household saving would benefit both the economy and the millions of American families who currently hold very little wealth.

Unfortunately, many years of concentrated attention on this issue by policymakers and economists have failed to uncover a silver bullet for increasing household saving. One promising area that deserves more attention is financial education. The Federal Reserve has actively supported such efforts, which may be useful in helping people understand the importance of saving and to learn about alternative saving vehicles. Psychologists have also studied how the framing of alternatives affects people's saving decisions. For example, studies suggest that employees are much more likely to participate in 401(k) retirement plans at work if they are enrolled automatically--with a choice to opt out-- rather than being required to actively choose to join. The pension bill recently passed by Congress and signed by the President included provisions to increase employers' incentives to adopt such opt-out rules; it will be interesting to see whether such rules are adopted and, if so, how effective they are in promoting employee saving.

Other steps can also help increase the future productive capacity of the economy and thereby reduce the adverse effects of demographic change. For example, devoting resources to improving our K-12 education system, expanding access to community colleges, increasing on-the-job training, and stimulating basic research could augment the nation's capital in the broadest sense of the term and might have desirable distributional effects as well.

Another response to population aging is to adopt measures that encourage participation in the labor force, particularly among older workers. In the near term, increases in labor force participation would raise income; some of this income would be saved and would thus be available to augment the capital stock. In the long run, higher rates of labor force participation, particularly by those who would otherwise be in retirement, could help to offset the negative effect of population aging on the share of the population that is working.

To some extent, increased labor force participation by older workers may happen naturally. Increased longevity and health will encourage greater numbers of older people to remain longer in the workforce. And slower growth in the labor force will motivate employers to retain or attract older workers--for example through higher wages, more flexibility in work schedules, increased training directed toward older workers, and changes in the retirement incentives provided by pension plans.

Reform of our unsustainable entitlement programs should also be a priority. The nature and timing of those reforms will be determined, of course, by our elected representatives. However, the intergenerational perspective does provide a few insights that might be helpful to policymakers as they undertake the needed reforms. First, restructuring the finances of our entitlement programs to minimize their reliance on deficit spending will enhance national saving and reduce the burden on future generations. Second, changes in the structure of entitlement programs should preserve or enhance the incentives to work and to save; for example, we should take care that benefits rules do not penalize those who may wish to work part-time after retirement. Finally, the imperative to undertake reform earlier rather than later is great. As illustrated by the simulation I discussed earlier, the longer the delay in putting our entitlement programs on a sound fiscal footing, the heavier the burden that will be passed on to future generations. Moreover, the sooner any restructuring of entitlement programs takes place, the easier it will be for people now in their working years to prepare, for example, by saving more today. However, if reform is delayed and fiscal exigencies ultimately force changes in these programs with little notice to potential retirees, their ability to adjust their behavior appropriately could be much reduced.

Conclusion

Over the next few decades, the U.S. population will grow significantly older, a development that will affect our society and our economy in many ways. In particular, the coming demographic transition will create severe fiscal challenges, as the cost of entitlement programs rises sharply. I hope to have persuaded you today, however, that the economic implications of this transition go well beyond fiscal policy. From a broader economic perspective, the question is how the burden of an aging population is to be shared between our generation and the generations that will follow us. A failure on our part to prepare for demographic change will have substantial adverse effects on the economic welfare of our children and grandchildren and on the long-run productive potential of the U.S. economy.

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Footnotes

1. See Sheiner, Sichel, and Slifman (2006) and Elmendorf and Sheiner (2000) for discussions of the basic approach. [Return to text](#)

2. Another approach for gauging the potential impact of demographic change on future generations is the generational accounting framework developed by Auerbach, Gokhale, and Kotlikoff (1992). This framework begins with the assumption that, for people living today, tax rates will not be increased and benefits will not be cut. On that assumption, one can calculate the taxes (net of transfers received) that future generations will have to pay to achieve long-term balance in the government budget. According to recent estimates using this approach, to achieve long-term budget balance the net tax rate on future generations will have to be about double the tax rate on current taxpayers (Gokhale and Kotlikoff, 2001). This approach looks at the intergenerational issue through the prism of fiscal policy rather than taking the broader economic perspective I have emphasized today, and its underlying assumptions are somewhat different. However, the basic message--that failure by the current generation to address the economic implications of aging will impose significant costs on future generations--is the same. [Return to text](#)

3. It is worth noting that a household's saving need not equal its change in wealth, since the standard definition of saving excludes capital gains. One plausible explanation of the recent low level of household saving rates is that capital gains in stocks and in residential real estate, by increasing wealth,

have reduced the motivation of households to save out of current income. If that explanation is correct, then the recent slowdown in the appreciation of house prices should lead ultimately to some increase in household saving rates, all else equal. [Return to text](#)

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