Population Changes and the Economy

Predicting the effect of the retirement of the baby boom generation on the economy is not a straightforward matter.

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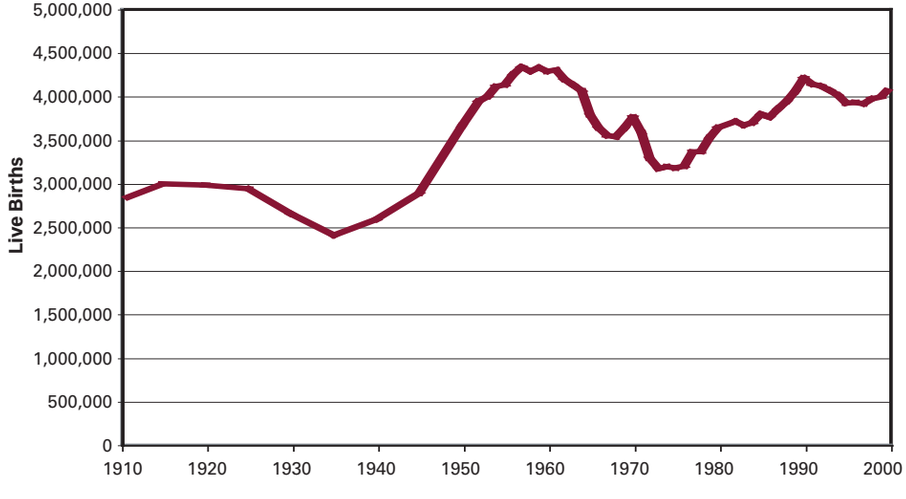
SOME ECONOMIC forecasters have suggested that the retirement of the baby boom generation will precipitate a decrease in aggregate spending, leading to various market collapses in housing, the stock market, and even the entire economy. This view is strongly rejected by the vast majority of economists and demographers. The bases for this rejection are that the aging of the baby boom generation is fully anticipated by markets, and that markets smooth the price effects of anticipated changes.

The notion of projecting the future of a market on the basis of future population shifts is attractive because many population changes can be predicted

successfully. Future population size and characteristics are determined by the size of the current population and the changes due to births, deaths, and in- or out-migration. The current population size and its characteristics are known. Births and deaths (although problematic to predict into the future) have little effect on the size and characteristics of the national population who are of working age—20 to 65—for 20 years into the future. Therefore, the size and characteristics of the national working-age population can be predicted with substantially less error than most other variables that affect the economy. Because the size and composition of the working-age population is known relatively accurately for at least two decades in advance, it is tempting to use this knowledge to predict shifts in the stock market, housing, and commercial real estate.

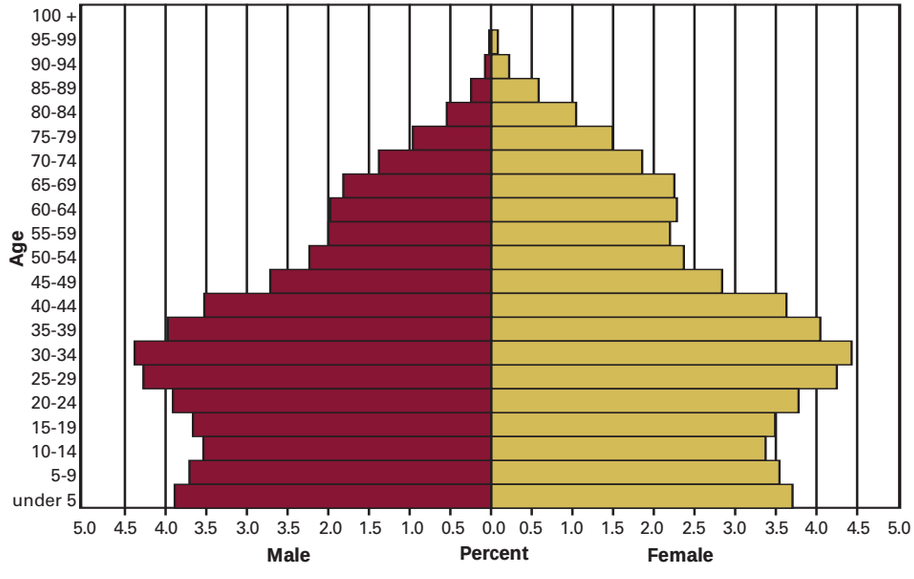
However, there are three concerns that arise when using population to predict economic outcomes. First, how accurate is the prediction of the future population size and characteristics? Second, how do population size and characteristics correlate with economic outcomes? And third, to the extent that population influences are foreseeable and their economic effects are predictable, will markets incorporate this information so as to mute the anticipated links, thus rendering predictions inaccurate?

Figure 1: Live births by year, 1910-2000



Source: Department of Health and Human Services, National Center for Health Statistics.

Figure 2: U.S. population by age and gender, 1990



PREDICTING POPULATION

Population predictions require data on current population, as well as predictions of births, deaths, and migration. Figure 1 illustrates the number of live births by year in the United States throughout the 20th century. The two peaks are periods when there were more than 4 million births per year; they include the 1946 to 1964 post-World War II baby boom and the baby "echo boom" that started in 1982. The two troughs include the Great Depression, when births fell below 2.5 million, and the 1964 to 1980 period, when births dropped below 3.2 million.

Figures 2, 3, and 4 display age pyramids for the U.S. population in 1990 and 2000, as well as the predicted population in 2025 (which is based on actual births for the age groups older than 25, and on predicted birth rates for those younger than 25). The left side of each chart shows the percentage of the male population in each age group for the year and the right side shows the percentage of the female population. Note that on Figure 2, the age pyramid for 1990, the "indentation" of the pyramid for the 10- to 14-year old group, reflecting the baby bust of birth years 1976 to 1980 in Figure 1, and the "bulges" for the 25- to 34-year-olds, reflecting mostly baby boomers born between 1956 and

Figure 3: U.S. population by age and gender, 2000

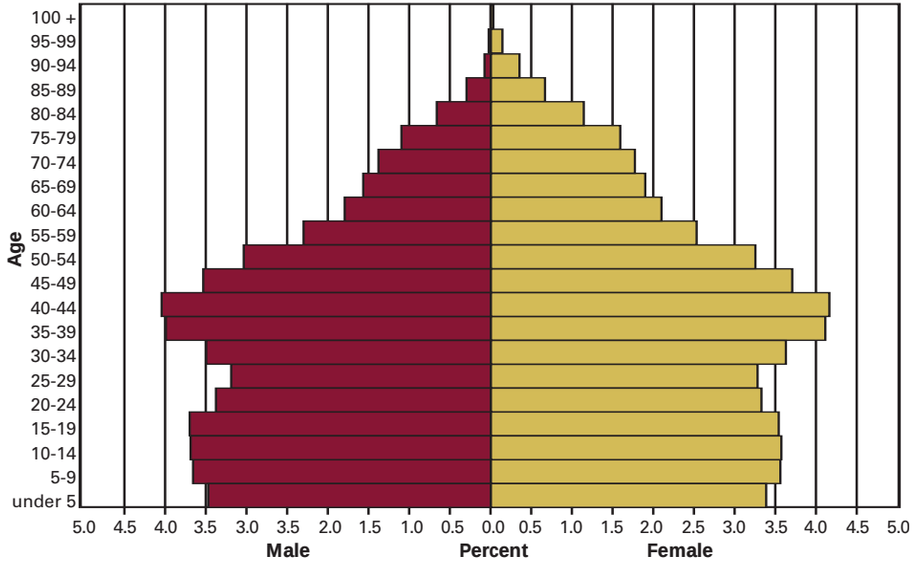
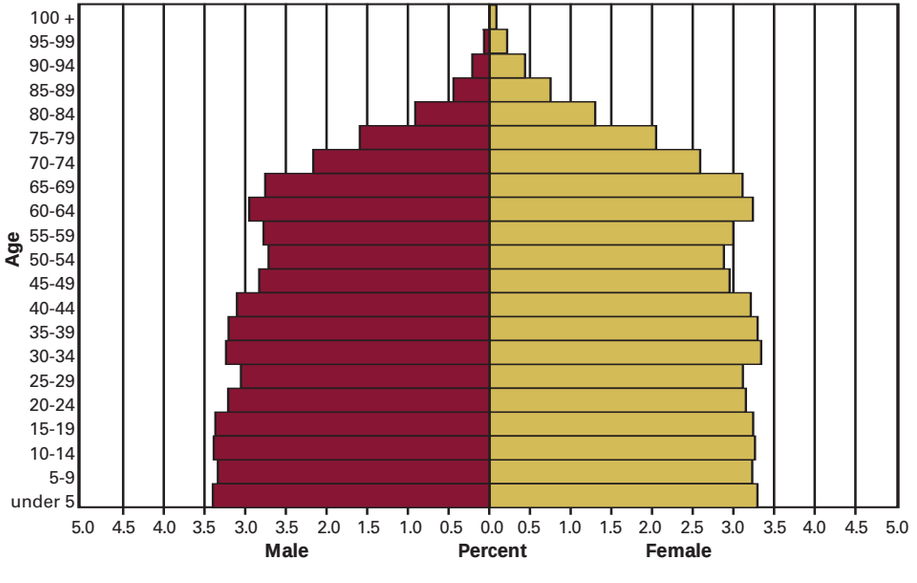
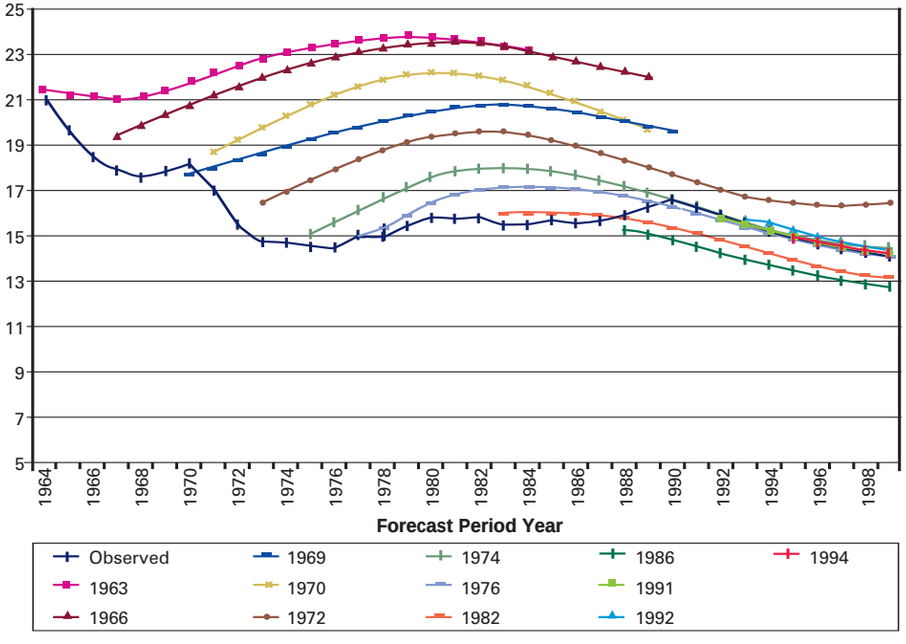


Figure 4: U.S. population by age and gender, 2025



Source: Figures 2, 3, and 4 were prepared by the U.S. Census and are available at http://www.census.gov/population/www/projections/natchart.html.

Figure 5: Observed and U.S. Census predicted crude birth rates, 1964-1999



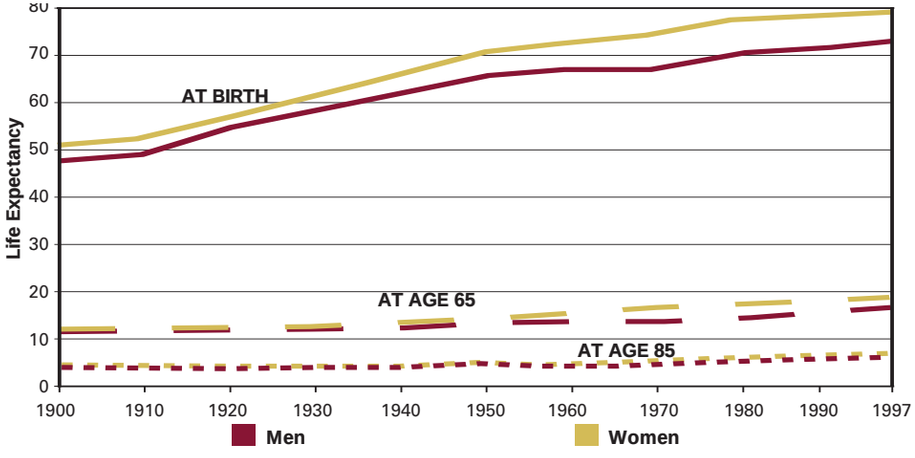
Source: Tammany J. Mulder, "Accuracy of the U.S. Census Bureau National Population Projections and Their Respective Components of Change," U.S. Census Population Division Working Paper Series No. 50, July 1, 2002.

1965. Figure 3, the age pyramid ten years later, shows a similar indentation for those 10- to 14-year-olds in 1990 who are now 20 to 24 and a bulge for those aged 35 to 44. For those age groups born before the date when the predictions are prepared, the predicted population proportions for each gender depend on known past birth rates and predictions of deaths and migration. The predicted "bulge" of the 2025 pyramid, shown in Figure 4, for the 60- to 69-year-olds reflects the known baby boom of 1956 to 1965 and the predicted "indentation" for the 50- to 54-year-olds reflects the known "baby bust" of 1971 to 1975.

It is important to understand that the track record on the accuracy of birth predictions, which is the critical component in predicting the size of the population in those ages not yet born, is not promising even for the best demographers. Figure 5 shows the crude birth rates (per 1,000 people) for 1964 to 1999 and the U.S. Census predictions for those birth rates.

Overall, the Census (an excellent group of demographers) tended to overpredict population based on its projections of birth rates. The predictions made from 1963 to 1974 (the start of the baby bust period), were far off the mark,

Figure 6: Life expectancy by age group and sex, in years, 1900-1997



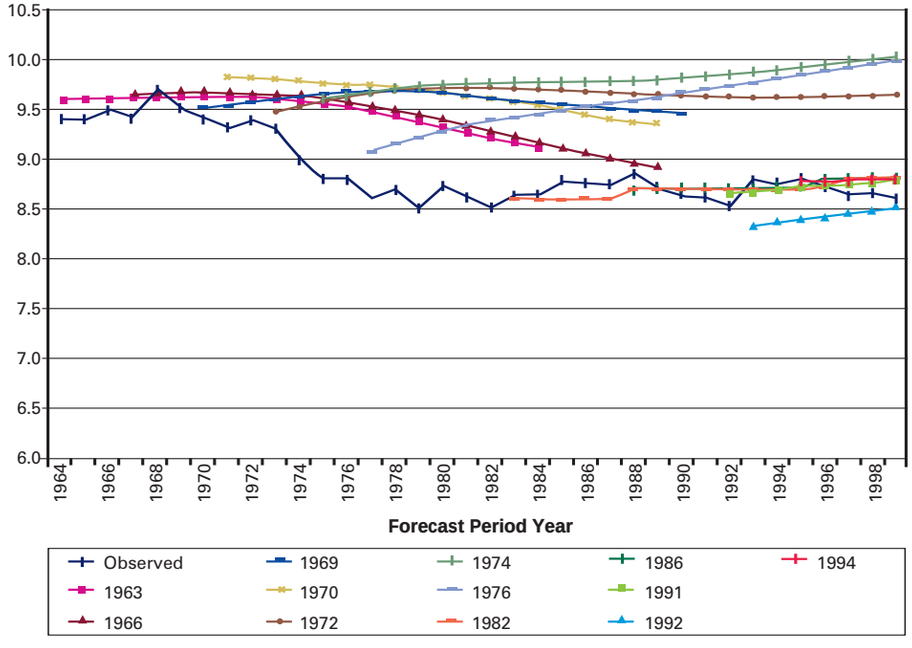
Reference population: These data refer to the resident population. Source: National Vital Statistics System.

consistently over-predicting births. Since 1974, when birth rates have fluctuated less, the predictions have been closer to the actual birth rates. What is obvious is that even the U.S. Census has not been able to accurately predict exactly *when* changes in birth rates will occur. For example, the decline in birth rates that started in 1964 was never predicted; neither was the trough of 1975-76, or the slight rise in birth rates between 1987 and 1990.

Figure 6 illustrates how life expectancy has changed in the 20th century. The chart includes changes in the life expectancy at birth, which increased from about age 50 in 1900 to about age 80 in 1997. The time path of the change in life expectancy is far less variable than the time path of the change in births. The largest rate of change on the figure is the increase that occurred roughly during the 1970s.

Predictions of death rates, while more accurate than predictions of birth rates, also have a poor track record. Figure 7 shows the crude death rates (per 1,000 people annually) for the 1964 to 1999 period, and the U.S. Census predictions for those death rates. Overall, the Census tended to over-predict death rates, resulting in an under-prediction of population. Census predictions appear to be amplifications of short-term trends. The relatively rapid drop in the death rates between 1969 and 1979 was not predicted by the Census, although the 1963, 1966 and 1970 predictions were for a less dramatic decrease in death rates. Interestingly, the 1969, 1972, and 1974 predictions were for mild increases in death rates. Since

Figure 7: Observed and U.S. Census predicted crude death rates, 1964-1999

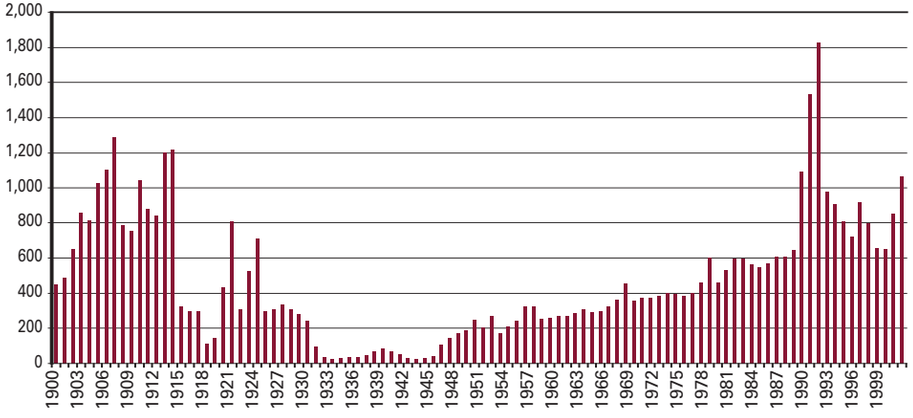


Source: Tammany J. Mulder, "Accuracy of the U.S. Census Bureau National Population Projections and Their Respective Components of Change," U.S. Census Population Division Working Paper Series No. 50, July 1, 2002.

1975, there has been little change in the actual death rate, as it moved between 8.5 per thousand and 8.8 per thousand in the population. However, the predictions did not reflect this stability until 1982. The inaccurate predictions of death rates have had less effect on overall population projections than did the inaccurate predictions of the birth rates. Although the over-prediction of death rates and the over-prediction of birth rates somewhat offset one another in terms of projected population size, they amplified errors in the prediction of age structure: errors in birth rate predictions over-predicted the sizes of younger populations, and errors in predictions of death rates under-predicted the size of older populations.

Figure 8 illustrates how legal migration into the United States has changed in the 20th century. Migration in the 1990s was large relative to any other time in our history and similar in magnitude to the flows early in the 20th century. Unfortunately, the U.S. Census's predictions of net migration rates are as problematic as its predictions of birth and

Figure 8: Immigrants to U.S. (in thousands) 1900-2001



Source: U.S. Citizen and Immigration Services.

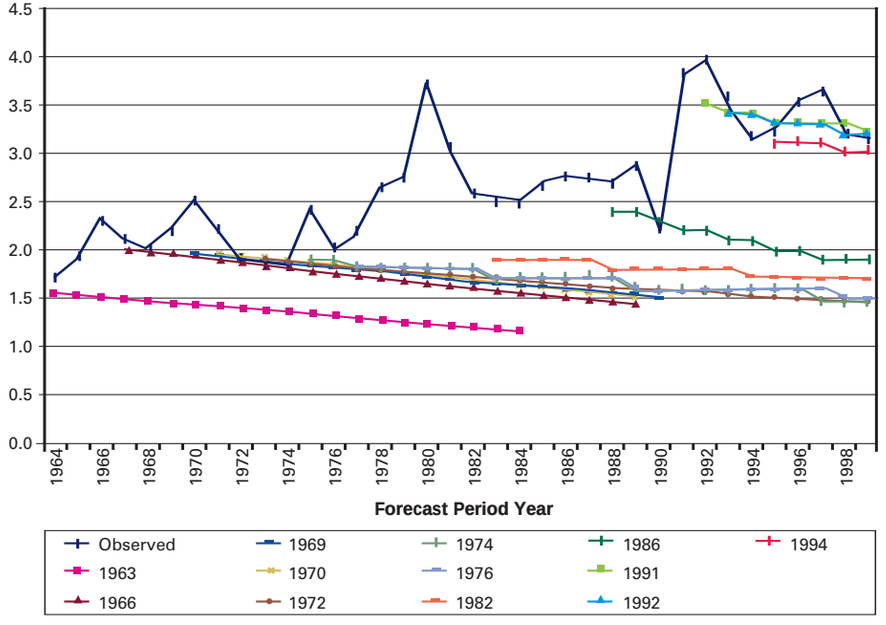
death rates. Figure 9 shows the actual net migration rates for 1964 to 1999 as well as the Census predictions for those rates made at various times. Overall, the Census tended to under-predict the net migration rate, and thus under-predict population. The relatively rapid increases in the net migration rates in the 1990s were also not predicted by the Census.

The 1986 prediction for 1991 was a little over half the actual rate. The 1991 prediction for 1992 (formed with knowledge of the 1991 increase) was much higher, but still a substantial under-prediction. The predictions made in 1992 and in 1994 for future years reflected the higher rates occurring in 1992 and 1994, but still under-predicted the actual rates.

Unlike births and deaths, migration levels strongly affect the size of populations in the 20- to 64-year-old groups. Figure 10 shows age pyramids for the foreign-born and native-born populations in the United States in 2002. The immigrant population includes substantially fewer persons not of working age, and substantially more persons of working age than the native-born population. Therefore, international migration has compensated for the "bulges" and "indentations" in the age pyramids for the native-born population. Furthermore, inaccurate prediction of migration resulted in under-predictions of the population aged 20 to 44.

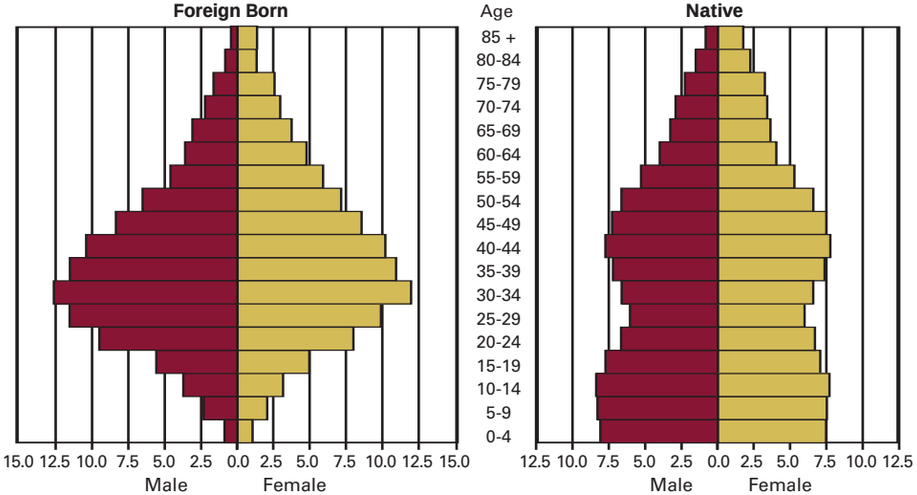
In summary, the track record for the accuracy of predictions of the components of population change—births, deaths, and migration—is poor. While the accuracy of predictions of the size of the working age population 20 years into the future is not

Figure 9: Observed and U.S. Census predicted net immigration rates, 1964-1999



Source: Tammany J. Mulder, "Accuracy of the U.S. Census Bureau National Population Projections and Their Respective Components of Change," U.S. Census Population Division Working Paper Series No. 50, July 1, 2002.

Figure 10: U.S. Population by nativity, age and gender



Source: Dianne Schmidley, "The Foreign-Born Population in the United States: March 2002," U.S. Census, Current Population Reports, pp. 20-539, February 2003.

strongly affected by inaccurate predictions of births and deaths, it is influenced by inaccurate predictions of migration. Even more problematic is the fact that migration can be a response to anticipated changes in the age composition of the population, as the government may admit more migrants in periods of labor shortages, and fewer in periods of unemployment. Also, since changes in populations at the margins affect economic outcomes, the errors in predicting births, deaths, and migration are problematic for anticipating the economic effects of demographic changes.

POPULATION AND ECONOMIC OUTCOMES

Microeconomics studies individuals and households, either at a point in time or as cohorts over time, and measures how the ages of individuals, or of household heads, have affected their income, their probabilities of retiring, their savings and investments, and their expenditures on housing, health, and other goods and services. Macroeconomics empirically examines how the size and structure of the population at different times correlate with the nation's aggregate income, savings, investments, and expenditures on housing, health, and other goods and services. Because the population age structure changes very slowly, the measurement problems are greater in macroeconomic studies than in microeconomic studies. There is not much variation by year in the composition of the nation's population to analyze. Furthermore, the correlation between the relative sizes of particular age groups for different time periods makes it difficult to isolate the effects of particular age groups accurately.

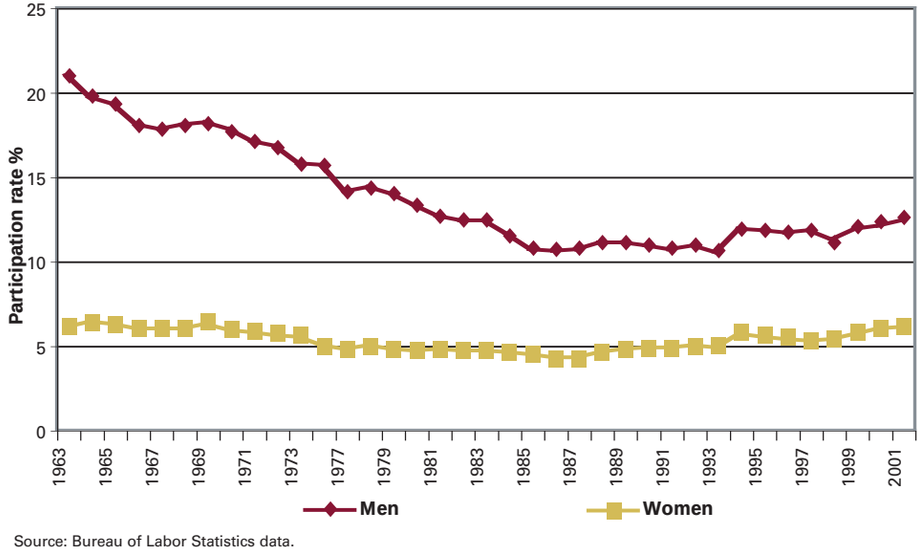
For the next two decades, as the baby boom generation reaches retirement age, and as the labor force participation of women levels out, all economists expect labor force growth to slow considerably. While there is debate about future growth in female labor force participation, rates of female labor force participation are now close enough to those for men that large increases seem impossible. Thus, future growth in the labor force will be primarily the result of the entry of the young and of migrants, or of delayed retirement by older workers. But migration is not easily predicted, and can even be manipulated by policymakers to increase labor force growth. The same is true of retirement.

Because both the incomes and health of older people have improved, microeconomic theory provides ambiguous predictions about changes in retirement age. On the one hand, as incomes rise, workers should retire earlier. On the other hand, as the health of older workers improves (or alternatively, as the physical requirements of jobs diminish), workers should retire later. Whether the income effect or the health/physical demands effect will be greater in determining retirement age in the future is unclear. For several decades, the income effect has dominated, causing the retirement age to decline. But in the last few years, there is evidence that the trend may be reversing, with the health effect dominating the income effect. Figure 11 displays labor force participation rates for men and women over 70, from 1963 to 2001. While the rates remain substantially lower than at the beginning of the period, they have increased slightly since the mid-1990s. Some researchers have attributed this rise to the changing age requirements for Social Security benefits. Because Social Security policies affect retirement ages, the rules for qualifying for Social Security are important (and difficult to predict) policy variables.

The oldest of the baby boom generation, born between 1946 and 1964, reached 58 this year. Those born in 1964 will reach 67 in 2031. By 2032, the baby boom generation will be almost entirely retired. But it is not clear exactly when most of the baby boomers will retire, although there is certainly no reason to expect anything other than a gradual movement of the generation into retirement.

Perhaps the most simplistic statement of microeconomic theory is the life-cycle theory of consumption, which holds that spending and savings decline after 65.

Figure 11: Labor force participation rates of men and women over age 70, 1963-2001



Source: Bureau of Labor Statistics data.

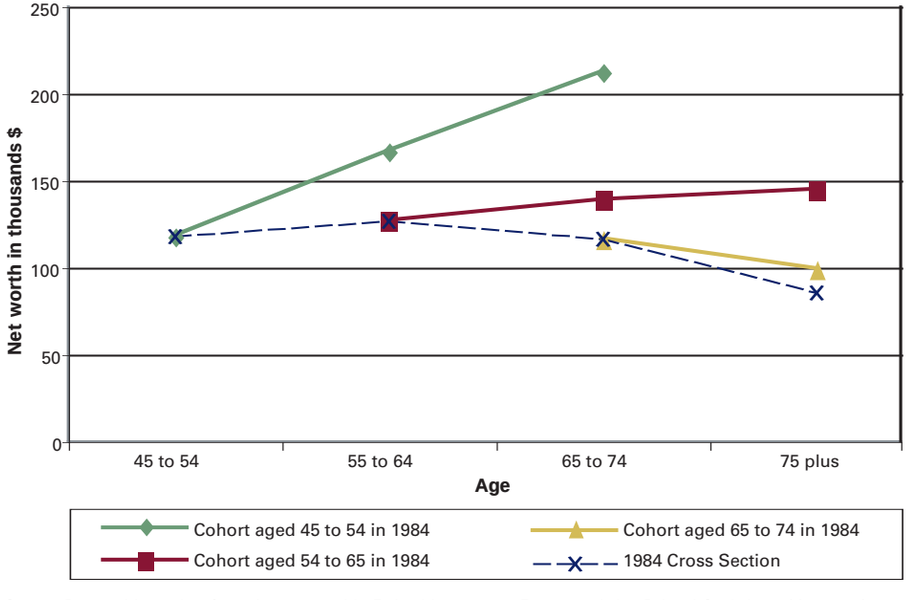
The expectation is that people spend more of a lower income when they retire. Between 20 and 65, people have higher incomes and savings. Extrapolating this life-cycle theory of individual behavior to the economy suggests that as the proportion of the population over 65 increases, aggregate spending and savings will decline. But this popular theory is supported neither by empirical studies of individual behavior nor by studies of aggregate market behavior.

Empirical studies of individual behavior have found that people over 65, at least those who hold most of the assets, continue to save. Although some studies suggest that retirees spend less and draw down their assets during retirement, the evidence is that the retirees who own the vast majority of assets held by the elderly population do not behave in the manner described by the life-cycle theory of consumption. Perhaps this is because they want to leave bequests or because they are risk-averse and seek to maintain high asset levels in order to maintain their lifestyle should they live to a very old age. In either case, they continue to spend their income and do not spend down their assets in their old age.

Past data on household spending and asset accumulation do not provide a good indicator of how baby boomers will save and spend as they age, since this generation is substantially wealthier than any previous generation. At any point in time, there will be a tendency in the data for older people to save less and spend less than younger people simply because they have had less overall income or wealth. Data on savings or income by age in any particular year include the effects of both age and the prior income history of the age group. Figure 12 illustrates the difference between measuring net worth by age at a point in time (1984) versus measuring the net worth of a cohort of the population as it ages. The figure shows the 1984 (cross-sectional) median net worth of households by age (in 2001 dollars). Figure 12 also displays the median net worth for households who were aged 45 to 54 in 1984 (again in 2001 dollars), the median net worth for these same households when they were aged 55 to 64 in 1994, and their median net worth (in 2001) when they reached ages 65 to 74. Because these households were wealthier than the households who were 55 to 64, or 65 to 74, in 1984, their net worth will be much higher when they reached these ages than was the case for previous generations. A similar pattern is observed for the cohorts who were 55 to 64 and 65 to 74 in 1984.

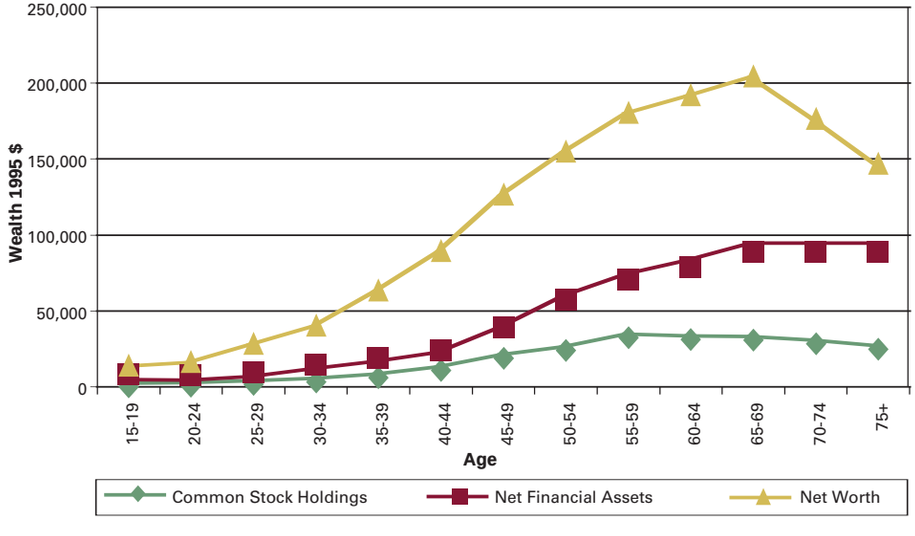
Figure 13 plots the results of a study of the relationships between age and assets

Figure 12: Median net worth by age: Cohort versus cross-section, 1984-2001



Source: Prepared by author from data reported in Federal Interagency Forum on Aging-Related Statistics, *Older Americans 2000: Key Indicators of Well-Being* (Washington, DC: Government Printing Office).

Figure 13: Age-wealth profile after adjusting cohort effects, 1983-1995

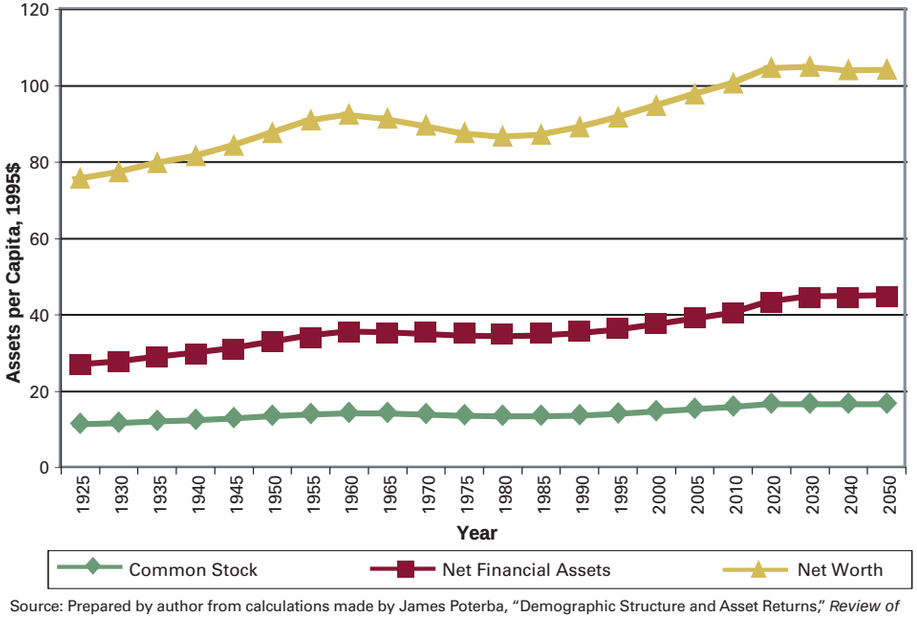


Source: Prepared by author from calculations made by James Poterba, "Demographic Structure and Asset Returns," *Review of Economics and Statistics*, vol. 83 (2001), Table 2, p. 570.

that adjusts the data to reflect the experiences of cohorts as they age. The figure shows cohort wealth over the life cycle for three asset categories. Average common stock holdings are defined as all common stocks including shares held through defined contribution pension accounts; net financial assets add assets other than common stocks (but subtract consumer and investment debt from gross financial assets); and net worth is the sum of net financial assets and the value of house net of mortgage, and holdings of other, nonfinancial, assets such as investment real estate net of any mortgages. The data reported in the figure are based on data collected between 1983 and 1995 by the Survey of Consumer Finance, and are expressed in 1995 dollars to capture how assets change over the life cycle for the same cohort of individuals.

Figure 13 reveals that, while age is associated with asset holdings even after considering the cohort effects described above, assets do not decline substantially during retirement. Younger adults (those under 40) have substantially lower asset holdings than those over 40. After 65, net financial assets and common stock holdings reach a plateau, moving neither up nor down with age, while net worth decreases after 69. The decline in net worth during retirement, however, is less than the increase in middle age. (Note that persons over 75 hold more assets than persons under age 50.) Having more persons over 75 and fewer under 50 will not, therefore, lead to a decrease in aggregate asset demand.

Figure 14: Projected inflation-adjusted assets per capita, persons over age 15, based on asset by age patterns in Figure 13



Source: Prepared by author from calculations made by James Poterba, "Demographic Structure and Asset Returns," *Review of Economics and Statistics*, vol. 83 (2001), Table 5, p. 573.

The macroeconomic effects of the population's age composition on asset holdings and asset prices are difficult to measure. Figure 14 shows how aggregate asset demand shifts with the age composition of the population if the patterns of asset demand by age held in each year and age composition were the only determinant of asset demand that changed. Figure 14 shows that, if the patterns of demand for assets by age for recent cohorts persist into the first half of the 21st century and these are the only factors affecting asset demands, the aging of the American population will actually *increase* demand for assets.

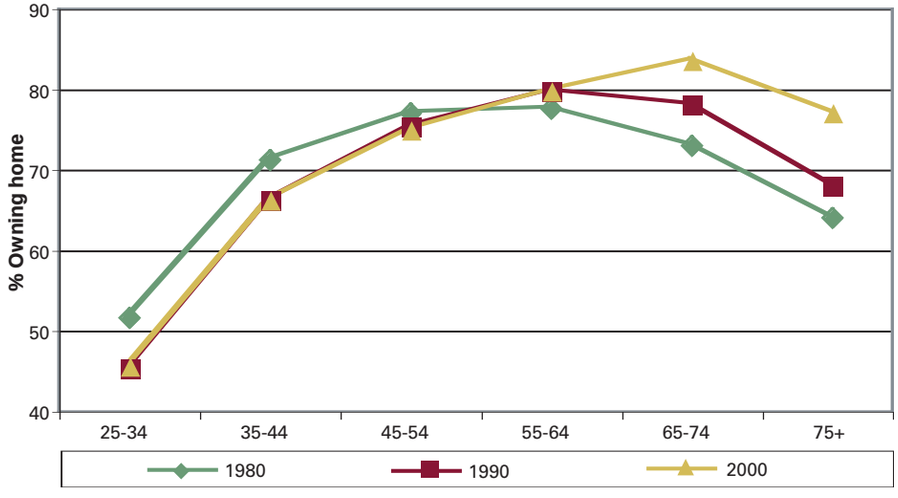
Studies that attempt to measure the correlation between the historic age composition of the population and demand for assets have generally found smaller effects than those implied by the "age-asset simulation" in Figure 14. The results differ across studies and are sensitive to the particular way that age effects are measured. The strongest evidence for age compositional effects on market outcomes is for returns on Treasury bills and long-term government bonds. There is weaker evidence that the ratio of the price of corporate equities relative to corporate dividends is correlated with age composition. However, none of these empirical findings support the view that asset returns will decline when the baby boomers retire.

There are at least three important reasons why the age structure of the population has been found to have so little effect on aggregate asset holding and prices. First, there is so much volatility in savings and spending across households and across time, that age effects are simply too small to be important. Second, since the age composition of the population changes very slowly, markets anticipate its effects. Finally, as markets are increasingly globally integrated, the demand for assets is less tied to the age composition of the U.S. population.

Will an aging population affect the aggregate demand for housing? At the individual or microeconomic level, the life-cycle theory of consumption holds that households are expected to occupy smaller housing units during retirement than during their child-raising years, decreasing the demand for housing.

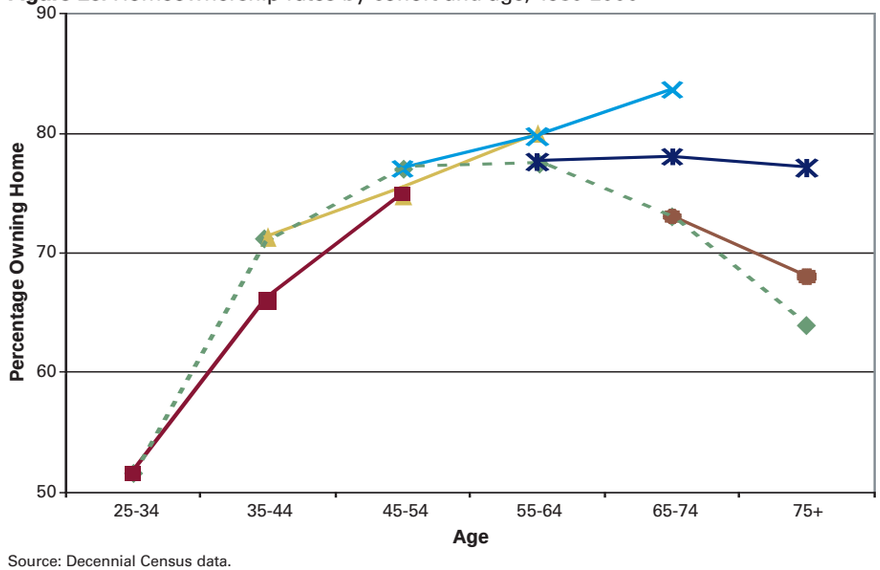
Figure 15 shows the relationship between homeownership rates and age for each of the census years of 1980, 1990, and 2000. The pattern of homeownership by age in 1980 is consistent with the life-cycle consumption theory, as homeown-

Figure 15: Homeownership rates by age, 1980-2000



Source: Decennial Census data.

Figure 16: Homeownership rates by cohort and age, 1980-2000



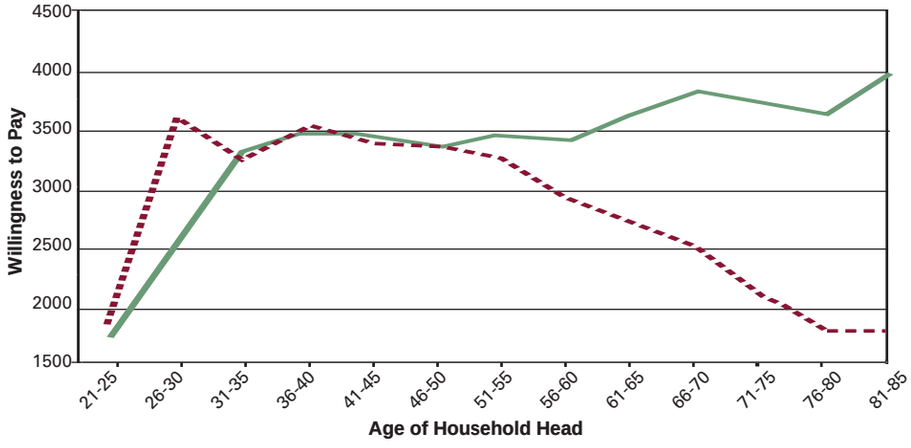
Source: Decennial Census data.

ership rates increase with age, peak for 45- to 54-year-olds, and then decline. But the patterns shift for 1990 and 2000. In fact, by 2000, the rate of homeownership is greatest for the 65- to 74-year-olds. The increases in homeownership rates between 1980 and 2000 are due to increased ownership rates among the over-55 population (which had more income and assets in 2000 than they did in 1980), with people of younger ages actually experiencing decreasing rates of ownership. As was the case for financial assets, the lower 1980 homeownership rates appear to be due to the elderly's lesser wealth, not their age.

Figure 16 displays the difference between the 1980 cross-sectional relationship linking age and homeownership rates, and the rates of homeownership experienced by each of the 1980 cohorts over the following 20 years. Consistent with Figure 15, the 25- to 34-year-olds in the 1980 cohort had lower rates of homeownership when they turned 35 to 44 in 1990 (or 45 to 54 in 2000) than did the cohort that was 35 to 44 (or 45 to 54) in 1980. The 45- to 54-year-olds in the 1980 cohort had much higher rates of homeownership at ages 55 to 64 in 1990, and at ages 65 to 74 in 2000, than did the cohorts who were the same ages in 1980. As was the case for financial assets, Figure 16 shows the rate of home ownership leveling out as people reached retirement ages. The plateau occurred because even though the elderly are less likely than younger cohorts to purchase homes, they typically occupy larger housing units. It is also clear that due to the greater incomes and wealth of baby boomers, their housing outcomes during retirement differed from those of earlier generations.

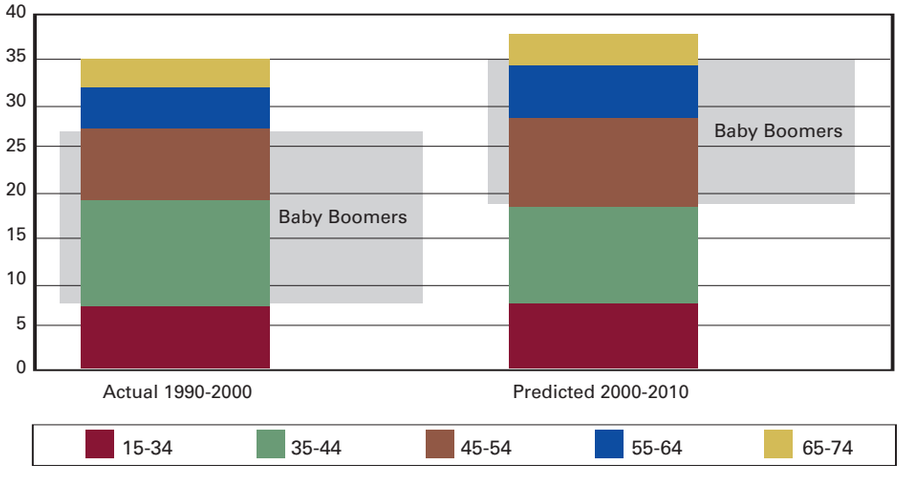
The willingness to pay for housing is a measure of housing demand, but it may also vary over the life cycle. One study first examined how the willingness to pay varies by age at a point in time, with no consideration of the effects of wealth and income, and then examined how age affected willingness to pay when only households with the same income and education were compared. Figure 17 shows the relationship between aging and willingness to pay for housing found in that study. The lower, dotted, line maps the willingness to pay for a given quality of house over age groups, with no consideration of other characteristics. The higher line isolates the true "age" effect of willingness to pay for housing by comparing people who differ by age, but who otherwise have the same income, education, household type, and race. The "isolated" age effect shows that the willingness to pay for a given quality of housing unit actually increases with age. The "uncontrolled" dotted line shows the opposite, because the elderly had less income than younger household heads. It was the lower income and education of older people that decreased their willingness to pay for housing, not their age. But because

Figure 17: Willingness to pay for housing unit by age



Source: Richard Green and Patric H. Hendershott, "Age, Housing Demand, and Real House Prices," *Regional Science and Urban Economics*, vol. 26 (1996), p. 475.

Figure 18: Millions of homeowners moving at least once in the decade, by age, 1990-2000 (Actual) and 2000-2010 (Predicted)



Source: Joint Center for Housing Studies of Harvard University, The State of the Nation's Housing 2003, Cambridge, Mass., p. 12.

baby boomers have more income and substantially greater wealth than previous generations, the "isolated" age effect line in Figure 17 is a more relevant indicator of post-retirement housing demand. The greater economic resources of baby boomers will increase their pre-retirement and post-retirement housing consumption far beyond that of previous generations.

Baby boomers are not yet over age 65, and will not be so for the next decade. They have continued to be active participants in the housing market. One measure of their demand for real estate is their numbers of repeat buyers. As Figure 18 shows, the older baby boomers, aged 45 to 54 in 2000, accounted for a substantial share of the homeowners who moved over the last decade. Half of the homeowners in this age group moved, with the majority moving to larger houses with more amenities. While the aging of the baby boomers means that they account for a smaller proportion of predicted movers in 2000 through 2010, their sheer numbers mean that they will continue to account for a sizeable share of repeat buyers.

There is more uncertainty about the echo baby boomers who will reach their mid-20s in 2010. Although there is no reason to believe that this group will not continue to postpone marriage and childbearing into their late 20s and early 30s, it is hard to know how much the expectations of increased income and gifts from parents or bequests from grandparents might increase housing demand.

DEMOGRAPHY AND ECONOMIC OUTCOMES

Future population size and age structure are not known with certainty, but are more accurately predicted than are most other social and economic variables. Can these "relatively more accurate" predictions forecast economic outcomes? Determining the historic connections between demography and economic outcomes and using these connections to assess how predicted demography will predict future economic outcomes is very difficult because there are large feedback effects. Feedback occurs when household decisions about investments, savings, stock market participation, and housing depend on their needs (reflected in age and family size) as well as prices and income. Prices and incomes, in turn, change in reaction to current demographics and in anticipation of future price changes and demographics, muting the effects of population shifts, and complicating prediction. Government policies also change, as do tax structure, inflation rates, interest rates, overall levels of spending, the size and nature of immigration from abroad, and spending for particular age groups.

In 1989, on the basis of demographic theory, Gregory Mankiw, President George W. Bush's chair of the Council of Economic Advisors, and David Weil predicted a 47 percent decline in housing prices between 1987 and 2007. They

attributed the 1970s increases in housing prices to the entry of the baby boomers into the housing market, and predicted that the entry of the 1965-81 baby bust generation would have the reverse effect. They forecast that demand would grow at a slower rate during the 1990s than at any time in the prior 40 years. Already, prior to their prediction, 47 of the largest 100 metropolitan areas had experienced a decrease in prices.

Of course, we know that home prices did not fall, and there were substantial increases in housing prices during the 1990s. Where did the predictions go wrong? In short, the approach was overly simplistic. One important problem was the failure to consider that the amount of housing produced responds to anticipated housing prices. In the real estate market, changes in demand are accommodated by reductions in quantity produced (development), and not only, or even principally, by changes in prices. When homebuilders anticipate a decrease in demand, current housing prices are lower, smoothing future price changes. Mankiw and Weil's predictions did not consider the effects of expectations on either current or future prices.

Attempts to predict prices are notoriously unreliable because many factors that influence price changes are either not considered or considered incorrectly. While the age structure of the nation's working-age population can be predicted with relative accuracy for a 20-year period, other important factors that serve to smooth the price effects of relatively slow, and easily anticipated, demographic changes cannot be predicted with accuracy. Productivity changes are critical to economic performance and to the flow of investments, but are basically impossible to predict. No empirically established connections between the rate of productivity increase and the age structure of population exist. While younger workers are, on average, more dynamic and flexible than are older workers, the productivity of older workers is higher than that of younger workers because of the effects of their greater experience, more specialized skills, lower supervisory costs and absenteeism, and better match between their skills and their job requirements. In short, the young have more energy, but less skill and judgment, and skill and judgment are highly productive.

Tax and regulatory changes are also critical to economic outcomes. Both the level and structure of Social Security benefits and of private pensions will influence when workers retire and their retirement behavior. Estate taxes affect the size and timing of bequests by the elderly. Bequests appear to be an important reason why the elderly continue to save in retirement, and also affect the savings behavior of heirs at a sufficient level to show up in aggregate savings. In addition, immigration policy determines the number of immigrants allowed into the country and their characteristics, including their age and skills. Any "shortages" of working-age people to support retirees can be resolved, at least in part, by more liberal immigration policies. Finally, the behavior of the population within any age group may change, undermining predictions based on the behavior remaining the same as the proportion of the age group changes. We have reviewed evidence that birth patterns, savings behavior, and home ownership by age has changed within the last 15 years, and that retirement age may be reversing its long-term decline. Also, asset allocation may change by age as baby boomers, who did not experience the Great Depression, replace the elderly, who did.

In sum, the relationships between the foreseeable future demographic composition of the population and future asset prices are impossible to predict. To the extent that the market anticipates demographic changes, prices, income, and behavior changes in response to that anticipation. If anticipated demographic changes are expected to lower prices in the future, then current prices—which include the expectation of future prices—are decreased because current prices fully reflect expectations of future change. Price changes over time are "smoothed" by market behavior. The bad news is that any prediction or forecast must credibly consider how expectations are created and acted upon. No one has been able to do this. The good news is that market processes themselves assure that market changes arising from anticipated changes in demography will occur smoothly.