

Strategies to Retain Older Workers

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Abstract

As the aging baby boom generation approaches retirement, employers are confronting an ever-tightening labor market. Defined benefit pensions have long been important source of retirement income, and many employers would like to continue offering this valuable benefit to their employees. Yet many of these plans provide strong incentives to retire early, which may not be consistent with workplace needs. In this chapter we explore options employers face when redesigning their pension plans to create positive incentives for workers to voluntarily work past traditional early retirement age. Incentives may also include work life programs such as eldercare and phased retirement, to help older workers balance their work and family responsibilities.

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As the baby boomers begin to retire over the next two decades, their exodus from the labor force will adversely affect the supply of labor available to employers. These retirement decisions will be affected by both economic and non-economic factors. For instance, generous early retirement subsidies in defined benefit (DB) plans, along with retiree medical coverage, provide strong incentives for workers having these plans to retire before age 65. In addition, factors influencing retirement go beyond the economic issues: for example, many older workers must care for aging parents, time demands that make full-time work challenging.

Looking ahead, then, many boomers will be searching for ways to *transition* into retirement rather than abruptly ending their working careers, which will change the nature of retirement in coming decades. Some employers will respond with strategies that encourage older workers to defer retirement, while still preserving the “retirement promise.” Such strategies could include work/life benefits including phased retirement programs, which would permit phasing out of work slowly; they also might involve employer-sponsored eldercare programs which help workers identify and evaluate care-giving alternatives for aging relatives or spouses.

In this chapter we begin by outlining the economic and demographic realities facing employers and spell out how these change the “retirement promise.” To understand the process, we quantify the effect of several factors on older workers’ retirement patterns, including early retirement incentives in DB plans, retiree medical coverage, and various work/life benefits including phased retirement and eldercare programs. Next we estimate the potential increase in older workers’ labor force participation from changing these benefit offerings, and we conclude that these will only marginally offset expected gaps between labor supply and demand in the coming decade.

The Nature of the Pension Promise

In the mid-1960s, when the Baby Boom generation began moving into the workforce, the private pension system was largely unregulated. The seeds of reform were sown during the Kennedy administration, prompted by funding, fiduciary, and vesting lapses that drew concern from many quarters (Sass, 1997). These reform efforts faced immense political resistance by both labor and business, but eventually they culminated in the Employment Retirement Income Security Act (ERISA) of 1974. One key element of ERISA was the protection of employee benefits (Title 1): the law held that private sector employers had an obligation to provide promised benefits and satisfy a set of requirements for managing and administering private pensions and welfare plans. The law also granted workers a legal “vested” right to their accrued pensions based on past service. Previously, employees often lost their accrued pension when they left jobs before retirement (Sass, 1997).

Prior to the enactment of ERISA, many employees trusted that their companies would stand by their benefit promises. However, some employers drafted their plans with protective language to avoid paying benefits at all, raising questions about the soundness of the implied contract (Schieber, 2004). Accordingly, the main thrust of ERISA was to protect accrued benefits and to ensure that if a company went bankrupt, there would be a federal insurance fund to cover those DB liabilities. It is worth noting that ERISA did not require firms offering pensions to insure benefits that might be accrued in the future; thus, the pension promise related mainly to benefits accrued to date.

Since company pensions in the US are voluntarily provided, sponsors continually weigh the costs and benefits of providing this benefit to the workforce. In addition to the tax benefits

pension offer, defined benefit pensions have also helped employers to shape their workforces in key ways. An initial reason companies adopted defined benefit plans was to promote an orderly retirement process (Ghilarducci, 1992), and many of these plans were coupled with retiree health insurance as well. At that time, labor was plentiful due to the wave of Boomer workers. Of course, over time, employers discovered additional benefits of traditional DB plans, most important among them the finding that they provided an important retention mechanism. Turnover rates were lower in firms with pensions (Mitchell, 1982) and tenure proved to be higher (Turner, 1993).

Notwithstanding the positives of DB plans, the costs of offering them have risen substantially over time. For one, administrative costs of complying and funding these plans grew markedly following the implementation of ERISA. One analyst found that administrative costs rose nearly three times between 1981 and 1996 (Hustead, 1998). For another, regulatory actions during the 1980s also curtailed employers' ability to fund their future pension obligations. First Congress restricted the level of pension funding allowable under the federal tax code with the Tax Equity and Fiscal Responsibility Act (TEFRA) of 1982. Next, it changed full funding limits on pensions, tying these caps to current liabilities instead of projected benefit obligations, with the Ominous Budget Reconciliation Act of 1987 (Schieber, 2003). These policies prevented employers from pre-funding their future obligations, so the size of unfunded DB liabilities began to rise and threaten to grow further as the workforce ages.

Higher administrative costs and funding restrictions altered the fundamental economic value of employer-sponsored retirement plans particularly for smaller firms and those with lower wage workers (Clark *et al.* 2004). For these organizations, it became more cost-effective to

instead adopt a 401(k) plan, which partly explains why defined benefit plans have declined in number (Papke, 1999). The Pension Benefit Guaranty Corporation (PBGC) in 1990 insured 87,564 small DB plans, with fewer than 1,000 employees; by 2003, that number fell by 70 percent to only 25,812 plans (PBGC, 2004). Larger employers often maintain their DB plans because they are able to spread the large administrative costs over a larger number of workers, yet even so, funding restrictions and falling equity markets have accelerated the rate of decline in that sector as well. Between 1990 and 2003, the number of PBGC-insured DB plans among firms with more than 1,000 employees fell 15 percent, from 4,335 to 3,700 plans (PBGC, 2004).

Employers who have retained a traditional DB plan seek to adapt them to the changing workforce and marketplace. One approach has been to convert them to hybrid plans: for instance, in 2000, one in five DB participants worked for companies with hybrid pension plans (PBGC, 2004). As their name suggests, these hybrids combine features of both DB and DC pensions. Similar to a DC, a hybrid plan accumulates benefits in the form of a hypothetical account balance which is paid out in a lump sum. Also like a DC, the benefits are portable; if the worker leaves an employer prior to normal retirement age, the assets can be rolled over and re-invested. Yet a hybrid plan retains many of the advantages of a traditional DB plan, in that the plan sponsor bearing investment risk and it is federally insured by the PBGC.

Despite their advantages, growth in hybrid conversions has slowed substantially in recent years due to increased regulatory and legal uncertainty. Some critics have argued that employers converting from a traditional DB plan to a hybrid plan do so to cut costs at the expense of long-service workers. Nevertheless, the data show that hybrid conversions since 1999 have actually increased plan sponsor pension costs by an average of 2.2 percent, and employers which converted their DB to hybrid plans also protected older workers nearing retirement (Goodfellow

et al. 2004). That is, some 89 percent of plan sponsors implemented specific protections for older workers, including “grandfathering” benefits, offering workers a choice between plans, and offering transitional credits. This suggests that a better explanation for why firms have converted to hybrid plans is that they are doing so to adapt to the changing workforce. Not only are workers older, but they are more likely to change jobs, meaning that the traditional backloaded DB plan is less attractive. For instance, research has found that industries with younger, more mobile workers and tighter labor markets were most likely to undertake hybrid conversions (Coronado and Copeland, 2003). Clearly, as long as employer-provided pensions are a voluntary benefit, it stands to reason that restricting hybrid conversions may detract from both employer and employee wellbeing.

The Changing Demographic Landscape and Potential Labor Shortages

As the leading edge of the Baby Boom generation approaches retirement, labor markets face a massive exodus of talent over the next several decades. How employers will adjust to these demographic changes will be very important for the economy. Figure 1 illustrates the trend: growth rates in the civilian US labor force from the 1950s through the 1990s, versus projections of slowdown thereafter. Indeed, Social Security Administration actuaries estimate that labor force growth to 2010 will be only about 75 percent of that seen during the 1990s, and after that it will be only about one-third as high. Consequently, a key question arises as to whether growing demand for goods and services might outpace a slow-growing workforce.

Figure 1 here

The demand for labor ultimately depends on the efficiency with which workers are employed in producing output, and the level of output that firms produce. In turn, output is

driven by the demand for goods and services and the role of international markets. The US has historically demonstrated a strong appetite for higher living standards, measured here by GDP per capita.¹ Table 1 illustrates per capita GDP over the last half of the 20th century, along with US population estimates, and GDP levels in 1996 dollars. It is interesting that per capita GDP growth over the last half century was fairly stable, notwithstanding year-to-year fluctuations.

Table 1 here

There are several ways of estimating future national output levels.² Here we rely on 10-year macroeconomic projections developed by the US Congressional Budget Office (CBO), similar to private sector estimates of economic growth projections (Lofgren *et al.* 2003). The last column of Table 1 also provides our projections for growth in standards of living to 2020.³ Here we assume an annual real per capita GDP growth rate of two percent to 2010, an estimate consistent with the pattern of historical improvement in standards of living. In the following period to 2020, the growth in output per person is anticipated to slow to roughly 1.66 percent per year, a rate of improvement roughly in line with previous periods. A key determinant of strong economic growth, despite slower labor supply expansion, is workforce productivity. Examining historical productivity growth (average GDP per hour) may offer insights for the future. During the 1950s and 1960s, average GDP per hour of labor grew at a rate of 2.66 percent per year, but over the last three decades, average annual growth in productivity has been a modest 1.5 percent. Just recently productivity has seen a resurgence, with the last half of the 1990s reporting a 2.1 percent per year, and an average of around 2.3 percent in 2002 and 2003.⁴

These growth projections have important labor force implications. To describe the challenges, we examine the relationship between the potential labor supply and the demand for

labor under a range of alternative productivity scenarios. The analysis begins by projecting labor supplies on the basis of the existing workforce and expected changes in the population over the coming decade.⁵ The most conservative projection scenario assumed that output per worker hour would rise at 1.5 percent per year, the average rate of increase in output per hour over the past three decades. In the second and third scenarios, we assumed that output per hour would increase at a rate of 1.75 and 2.0 percent per year, respectively, reflecting the ranges experienced in worker productivity growth during the past decade. Two last scenarios assumed that output per hour increases at 2.44 percent and 2.23 percent per year, roughly in line with those of the 1950s and 1960s (but unmatched for any extended period since then).

Table 2 presents the results of these projections in terms of full-time equivalent (FTE) workers.⁶ Our approach poses the problem as measuring how much labor force participation rates of workers over age 55 would have to change to meet the gap. Of course boosting employment could also happen at other age groups, drawing in more women and younger cohorts.⁷ Yet we focus on the age 55+ bracket, inasmuch as these workers are those most affected by pension and other retirement programs over the next two decades.

Table 2 here

Under the most conservative productivity improvement scenario, there will be a labor shortfall estimated at 6.6 percent in 2010, representing roughly 8.9 million FTE workers. As seen in Table 3, the shortfall is reduced when productivity rises. Labor supply will be sufficient to meet labor demand only if productivity improvements meet or exceed 2.44 percent per year. Projecting further, to the year 2020, the gap between labor supply and demand widens to 18.1 million FTE workers under the most conservative scenario (a 13 percent shortfall). In order to close the gap under the 2020 projection, labor productivity would need to sustain an annual rate

of 2.23 percent, if current workforce patterns persist. The fact that the required productivity rate is lower for the 2020 scenario compared to the 2010 scenario reflects the slowdown in output growth anticipated by the CBO over the 2010's.

Table 3 here

If the required boost in labor productivity is not achievable in the coming decades, higher rates of workforce participation will be needed to avoid disappointing future standards of living. Employers will either have to entice some people into the workforce who are outside it today, or convince their current workers to work longer hours. Since here we focus on the labor supply of older workers, Table 3 illustrates how much rates would have to rise for males and females age 55+ to eliminate the labor supply shortage. As noted above, under our most conservative productivity scenario, we estimate a 6.6 percent shortfall for 2010, which rises to 13 percent by 2020. Under the 1.5 percent productivity improvement scenario, participation rates would need to rise by more than one-third compared to current levels. For men ages 55-59, participation rates would have to increase from 77.6 percent in 2003 to 105.6 percent by 2010. Likewise, female participation rates in the same age cohort would have to climb from 65.5 to 89.1 percent over the decade. These increases are implausible since then participation would be above the natural limit of 100 percent for men, though people would need to work increasingly longer days or hold multiple jobs. Looking at the 1.75 percent and 2.0 percent productivity growth scenarios, participation rates would need to rise by 26.2 percent and 16.5 percent, respectively, by 2010.⁸

If we extend the period out to 2020 under the 1.5 percent productivity scenario, activity rates would need to rise by nearly 60 percent among older workers over the next two decades to close the gap between labor supply and labor demand. Participation rates for both males and females ages 55 to 59 would need to rise above 100 percent, of course an improbable outcome.

Under the 1.75 percent productivity scenario, participation rates would need to rise by 38.5 percent, and for the 2.0 percent scenario rates would have to increase by over 18 percent.

Next we turn to a discussion of how pensions and retiree medical plans influence early retirement, and finally we evaluate several strategies that employers can use to induce workers to retire later.

The Importance of Pensions and Retiree Medical Plans to the Retirement Decision

These economic and demographic realities suggests that employers will likely launch a search for strategies to retain their older workers. Because DB pensions have the strongest early retirement incentives, these will naturally be a prime target for change. Evidence suggests that early retirement subsidies in DB pensions and Social Security strongly influence the decision to retire before normal retirement age (Coile and Gruber, 2000; Gustman *et al.* 1994). Traditional DB plans generally encourage early retirement by offering early retirement subsidies and delayed retirement penalties (Luzadis and Mitchell, 1991). While most early retirement benefits are actuarially reduced to reflect a longer payout period, these reductions generally are small and tend to provide a more than actuarially fair early retirement benefit. For instance, two-thirds of defined benefit plans had an early retirement subsidy in 1994 (Foster, 1996).

Though pension coverage has declined for the workforce as a whole over the past decade, it is still prevalent among Baby Boomers, particularly the older segment (see Table 4). Overall, 37 percent of the older set (age 43 to 52 in 1998) had a DB plan, more than the 29 percent of their younger counterparts (age 33 to 42 in 1998). Men are slightly more likely to have DB coverage than women, and Baby Boomers with income above \$30,000 are nearly twice as likely to be covered by a pension plan. In fact, among older Baby Boomers with incomes above

\$30,000, almost half had DB coverage (Verma and Lichtenstein, 2003). Thus we expect that the incentives in these plans will affect the retirement decision of boomers in 2010 and 2020.

Table 4 here

Another factor that affects the timing of retirement is the availability of retiree health insurance. This is particularly a concern for pre-65 retirees who must purchase coverage in the retail marketplace. A recent Health Confidence Survey reported that 60 percent of workers said they would not retire before becoming eligible for Medicare, unless their employer provided retiree health benefits (EBRI 2002). Other evidence also confirms that retiree medical plans encourage older workers to retire early (Karoly and Rogowski, 1997). Yet there is little consensus on the magnitude of these effects, perhaps because these studies suffer from data limitations regarding pension plan availability, pension plan incentives, measures of the value of retiree health insurance, and sample restrictions (Gruber and Madrian, 2002).

Also the impact of retiree medical plans on future retirees may decline, since fewer companies are offering this benefit over time (McDevitt *et al.* 2002). Before 1980, employer-sponsored retiree health insurance often accompanied defined benefit pension plans, and more than 80 percent of medium and large employers offered some form of retiree health insurance (Figure 2). By 2003, only 40 percent of medium and large firms offered a retiree medical plan to active employees. The nature of the retiree health benefit is also changing. Today's retiree health plans are more likely to have contribution caps, service-related contributions, and substantial retiree cost-sharing (McDevitt *et al.*, 2002). While few empirical studies have accounted for these new plan design features, it is likely that these features will influence retirement incentives for the next generation of older workers.

Figure 2 here

Strategies to Retain Older Workers

Prior studies have found that early retirement pension provisions and retiree medical plans help induce early retirement, but the magnitude of these effects is, as yet, not firmly established. This is partly because of the difficulties inherent in separating the effects of pension incentives from retiree medical plans and other benefits.⁹ Additionally, previous studies have been able to measure the existence of these plans, but they have not evaluated specific pension and medical plan designs. Finally, prior researchers have not accounted for the potential inter-relationships between work/life benefits and retirement incentives. These latter benefits, which include both formal and informal phased retirement arrangements and eldercare programs, may also influence retirement incentives.

To fill these gaps, we employ a unique dataset that combines personnel records with details about retirement plan design features. We have collected personnel files for 42 large companies with DB pensions plans, representing nearly 300,000 active workers. Of these employees, 37,428 are age 55+, 72 percent of whom were eligible to retire. The datafiles include demographic information for all employees on age, sex, tenure, and salary; to this we have appended information on plan features and dollar values of each worker's pension and health benefits based on his age, salary and tenure derived from Watson Wyatt's COMPARISON™ database. Using actuarial models, we compute the present value of each worker's pension benefit at the earliest age of eligibility or attained age, if later, as well as the worker's normal retirement age in the plan. Information is also available on the features of retiree medical plans if they were offered. Finally, we have information on work/life benefits including the existence of phased retirement programs and eldercare programs.

Using these data, we explore three simulated scenarios:

Strategy 1: Reduce Economic Subsidies in Early Retirement Benefits. The vast majority (95 percent) of all DB plans offer some form of early retirement benefit (Mitchell, 2000), with the size of the early retirement subsidy depending on the extent to which the normal retirement benefit is reduced, when calculating early benefits. The intent of the early retirement reduction factor is to adjust early benefits to account for the fact that benefits will be paid out over a longer number of years. As a rule of thumb, actuaries suggest that an early reduction factor of 60 percent is actuarially fair for a 55-year-old; reductions of 40 percent and 30 percent, respectively, are roughly actuarially neutral for a 60- and 62-year-old.¹⁰

We also point out the difference between an actuarially fair benefit and an economically fair benefit.¹¹ The actuarially fair reduction does not account for additional years and wage growth a worker would attain, if he or she delayed retirement until the plan's normal retirement age, whereas the economically fair benefit does. So even though an early retirement benefit is actuarially subsidized, it might not be seen as embodying an economic subsidy. That is, an economic subsidy exists if the present value of the early retirement benefit exceeds or equals the present value of the normal retirement benefit. In our sample, 28 percent of workers eligible to retire had an economic early retirement subsidy.

To estimate how an economic subsidy influences retirement, we created an indicator that equaled one when the present value of the early retirement benefit was greater than or equal to the present value of the normal retirement benefit. Results in Figure 3 show that the economic pension subsidy reduced the average retirement age by nearly 9 months for men and 10 months for women.

Figure 3 here

Strategy 2: Change the Nature of Retiree Medical Benefits. As noted above, while having retiree health insurance boosts the likelihood of early retirement, there is little consensus on the magnitude of this effect.¹² For our sample of DB participants, 83 percent had retiree medical plans, which we find reduces retirement ages by 1.6 years for women and 9.4 months for men (although the effect is less statistically significant for men; Figure 3). If the prevalence of these plans falls in the future, this could significantly impact labor force participation rates. Of course, while the existence of the plan is important, the design features of plans are also important. In our sample, 28 percent of workers with retiree medical plans also faced capped employer premiums, and as this becomes more prevalent, employers will seek to pass on future retiree medical cost increases to the plan participants (McDevitt *et al.*, 2002). This will have an impact on retirement ages according to our findings. If retiree medical insurance is available, but the plan has premium caps, this substantially offsets the tendency to retire early. For our dataset, for instance, retirement ages decline only by 2.7 months for men (6.6 months minus 9.9 months), and 7.2 months for women (1.0 months -1.6 months).

A second design feature of retiree medical plans has to do with service-related premiums, by which we mean that employers link their premium contributions to the worker's tenure with the firm. In our dataset, 27 percent of firms with retiree medical plans had service-related premiums. If the retiree medical plan had such service-related premiums, retirement ages only declined by 8.5 months for women (versus 1.6 years if retiree medical coverage lacked service-related premiums). There is no significant effect of service related premiums on men, perhaps because men in the sample had longer tenure. Philosophically, it makes sense to align retirement benefits with service which makes them more consistent with traditional DB pensions.

Strategy 3: Implement Work Life Benefits Like Eldercare and Phased Retirement.

While changing early retirement subsidies and retiree medical plans may help some employers achieve deferred retirement, some firms face pressure to preserve benefits for workers close to retirement. Consequently, there is a need for other ways to offer older workers incentives to remain on the job. Integral to these offerings is the element of time, since employees' time on the job competes against other demands including time spent with family, travel, volunteerism and other activities.

A particularly time-consuming activity of much concern to older workers has to do with caregiving responsibilities for aging parents, grandchildren, or other relatives. It is estimated that 17 percent of the workforce is actively involved in providing care for an older family member or friend (National Alliance for Caregiving, 2004). Caregivers report that they incur significant losses in career development, salary and retirement income, and substantial out-of-pocket expenses, as a result of their caregiving obligations (Metlife, 1999). Approximately 10 percent of working caregivers retire early because they cannot successfully balance the demand of career and family (National Alliance for Caregiving, 1997). In addition, we have calculated from the Current Population Survey that for women age 55-64 who exit the workforce, 23 percent report they left to take care of family.

To the extent that employers can help alleviate these caregiving responsibilities, they may free them up to work longer. One approach is to offer eldercare programs, which help employees identify, evaluate, and contact eldercare services. Some also provide a social worker to work with families to identify various alternatives given their work situations and incomes. When relatives need more intensive care, these services help locate home health aides and even help

find high-quality nursing homes. In our datafile described above, one-quarter of older workers eligible to retire had access to eldercare programs.

Another way that employers can help their workers address caregiving needs is to develop phased retirement programs allowing them more time to care for an aging relative. Phased retirement programs allow workers to slowly transition into retirement and can include part-time work or flexible schedules. Our database suggests that 40 percent of employers provide flexible work schedules for their employees, and a separate Watson Wyatt survey found that 16 percent of large employers offer some type of formal phased retirement program.

While our analysis shows that eldercare assistance and phased retirement programs do encourage workers to delay retirement, the results differ by gender (see Figure 4). Men tend to be more responsive to eldercare programs but less to phased retirement programs, while women have the opposite response. This discrepancy likely reflects the fact that the nature of care-giving responsibilities often differs by sex (Metlife, 2003); for instance, men are more likely to be long-distance caregivers and provide financial support rather than actual personal care services. In addition, men tend to help more with non-personal caregiving events that can be scheduled around a workday. The services provided by eldercare assistance programs seem to meet those needs. In fact, our analysis shows that employer-provided elder care assistance programs increase the average retirement age of men by eight months, while the same programs increase the average retirement age of women by only one month. Women, on the other hand, are more likely than men to help with “hands-on” personal care services like feeding, dressing, bathing, and transferring.

Figure 4 here

This is particularly relevant since a recent Metlife (2003) study found that women were more likely to report that they are leaving their jobs as a result of care-giving responsibilities (20 percent) compared with men (11 percent). Therefore, the flexibility offered by phased retirement programs often can address women's care-giving needs more effectively than do eldercare assistance programs. Overall, one-quarter percent of older workers appear to phase out of work (Quinn, 1999), and women constitute the majority of phasers (Mulvey, 2004). In addition, the desire to phase and the intensity of care-giving activities are related. Of workers who phased, 30 percent of female phasers provide care to a family member, while only 19 percent of male phasers have care-giving responsibilities.¹³ Our analysis supports these trends and shows that the existence of a phased retirement program increases the average retirement age among women by 21 months. For men, phasing increased average retirement age by about 5 months.

To put each of these scenarios in perspective, we combine our analysis of labor supply and labor demand in Figure 5. This illustrates the predicted impact on the gap between labor supply and demand if employers were attempting to delay retirement ages for eligible workers by one, two, or three years. We find that a combination of these strategies might lower the average retirement rate for men and women by nearly two years. This would have a measurable impact on the gap between labor supply and demand, of 11 percent in 2010, and 17 percent in 2020. It is possible that the remaining shortfall could be met by increasing labor force participation among workers age 65+ and among younger women. Indeed, Nyce and Schieber (2002) report that women's labor force participation rates would have to rise only about 3.5 percentage points in order to close the gap, assuming a productivity rate of two percent (naturally lower productivity growth rates would require a larger response).

Figure 5 here

Conclusions

Employer-sponsored pensions and retiree medical benefits remain an important source of retirement income, often providing incentives for workers to retire as early as age 55. At the same time, as Baby Boomers approach retirement, employers must confront an ever-tightening labor market and some will want to keep older workers on the job. Unless productivity growth is raised substantially, the productive sector must face considerable staffing challenges.

Our work suggests that part of the gap can be filled by changing some of the incentives built into programs for older workers. For instance, employers can continue to offer DB plans and retain their older workers by paring early retirement subsidies. Modifying retiree health benefits can also have a direct influence on retirement ages. Other strategies including the introduction of work-life programs can also have beneficial effects. Specifically, the use of phased retirement and eldercare programs can provide positive incentives for older workers to postpone retirement. We note that likely responses to these programs differ by sex: men seem most responsive to eldercare programs, while women are more responsive to phased retirement programs. Combined with strategies to boost labor force participation among the elderly and women overall, such efforts could help to narrow the expected gap between labor supply and demand over the coming decades.

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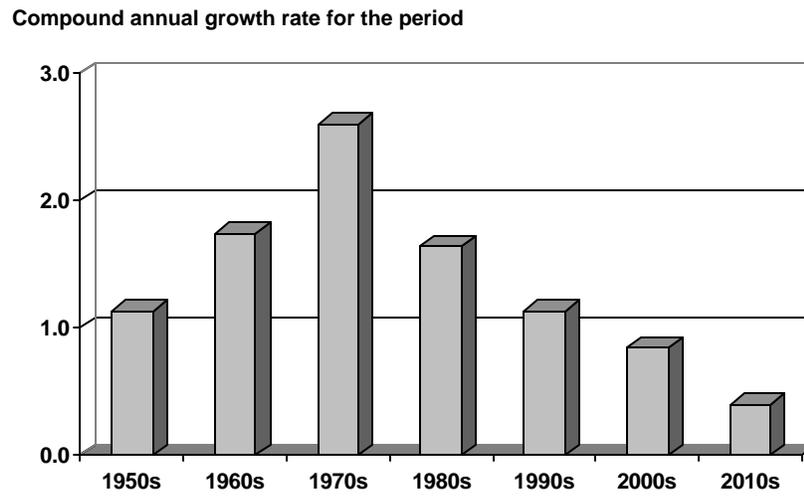
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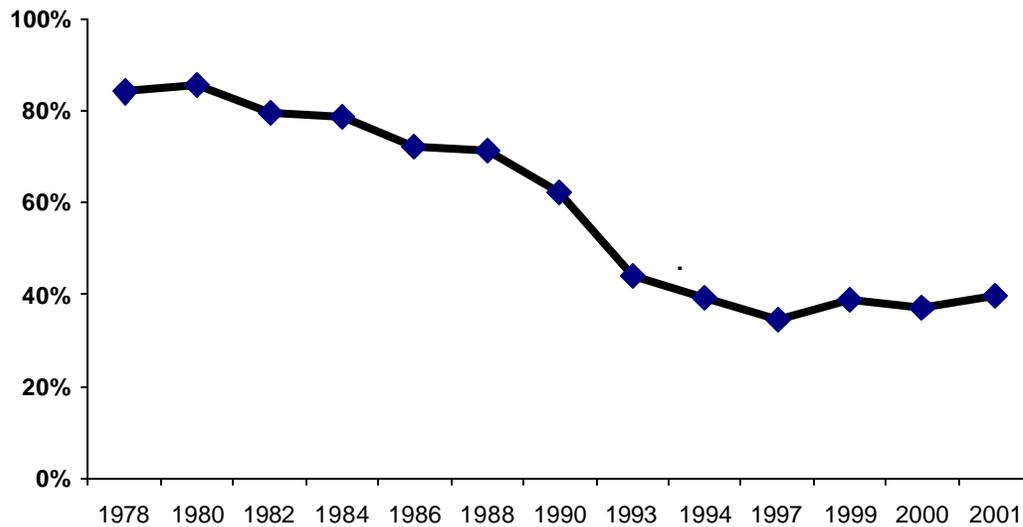
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Figure 1: U.S. Civilian Labor Force Growth Rates for Selected Decades



Sources: Council of Economic Advisors (2004); Social Security Administration (2000).

Figure 2: Percentage of Medium and Large Firms Offering a Retiree Health Plan to Active Employees



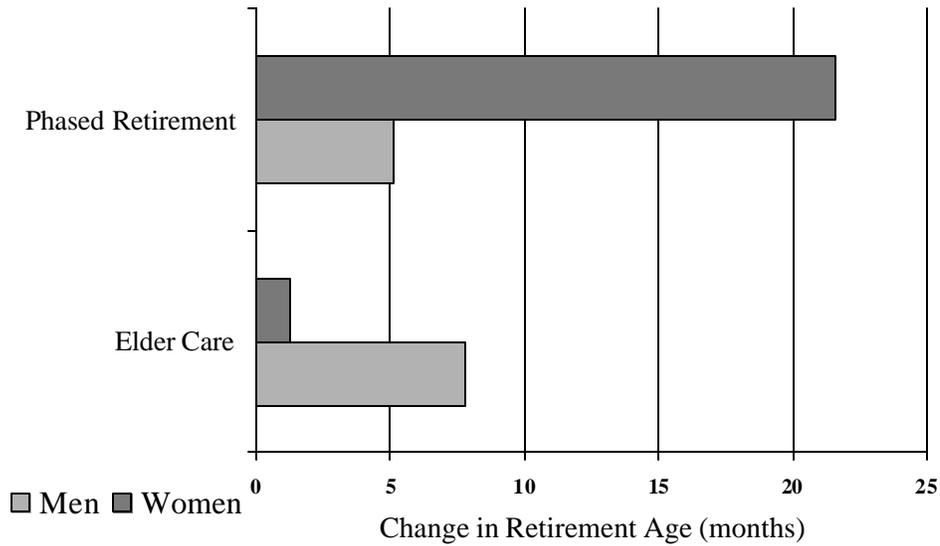
Source: Watson Wyatt Data Services (various years). These surveys were targeted at medium and large firms.

Figure 3: Effect of Retirement Plan Provisions on Retirement Ages



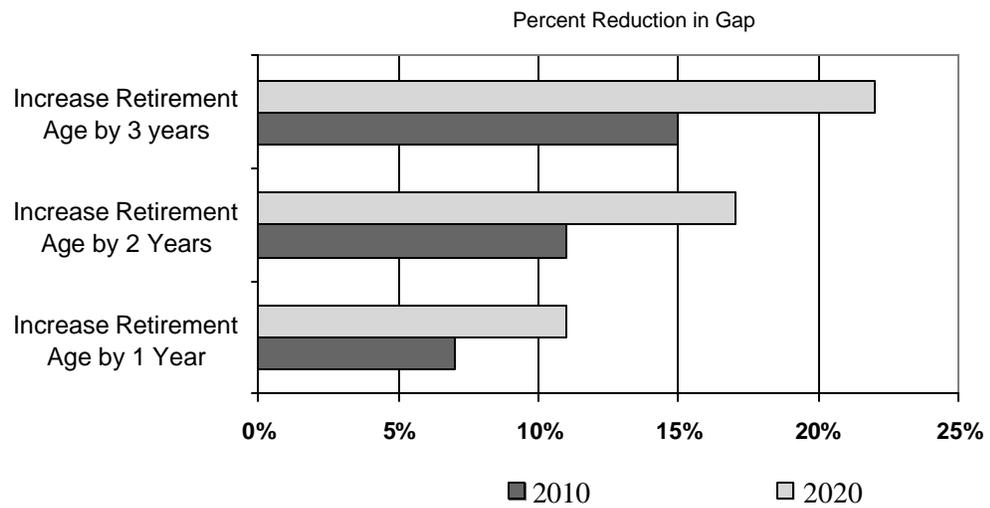
Source: Authors' estimates using coefficients presented in Appendix.

Figure 4: Effect of Work-Life Benefits on Retirement Ages



Source: Authors' estimates using coefficients presented in Appendix.

Figure 5: Effect of Strategies on Retirement Ages



Source: Authors' calculations assuming a 2% productivity growth rate for labor gap estimates.

Table 1: Population and Output Measures in the United States for Selected Periods and Expectations for the Future

	<u>Resident</u> population (in millions)	<u>GDP in 2000</u> chain weighted Dollars (in billions)	<u>Annualized</u> GDP growth rate from prior date (percent)	<u>GDP</u> per capita in 2000 dollars	<u>Annualized</u> growth rate in per capita GDP from prior date
1950	152.3	\$1,777.30		\$11,669.73	
1960	180.7	2,501.80	3.48	13,845.05	1.72%
1970	205.1	3,771.90	4.19	18,390.54	2.88
1980	227.8	5,161.70	3.19	22,658.91	2.11
1990	249.5	7,112.50	3.26	28,507.01	2.32
2000	275.3	9,817.00	3.28	35,659.28	2.26
2010	299.9	13,030.50	2.87	43,449.48	2.00
2020	324.9	16,646.90	2.48	51,237.00	1.66

Sources: CBO (, Census Bureau and U.S. Department of Commerce, Bureau of Economic Analysis.

Table 2: Labor Supply Gap under Alternative Productivity Growth Scenarios

<i>(Millions)</i>	<u>2010</u>	<u>2020</u>	<u>Gap 2010</u>	<u>Gap 2020</u>
Labor Supply FTE	134.6	139.9	-	-
Labor Demand FTE				
at 1.5% Productivity	143.6	158.0	8.9	18.1
at 1.75% Productivity	141.1	151.5	6.5	11.7
at 2.0% Productivity	138.7	145.4	4.1	5.5
at 2.23% Productivity	136.5	139.9	1.9	0.0
at 2.44% Productivity	134.6	135.1	0.0	-4.8

Source: Authors' calculations from unpublished projections provided by the SSA (2001); the U.S. Department of Commerce (2004: D-3); Unicon (2003); the U.S. Census Bureau (2000: NP-D1-A); and the CBO (2004: Table E-1).

Table 3: Required Changes in Labor Force Participation Necessary to Meet Future Growth Prospects under Alternative Productivity Growth Scenarios

		<u>1.5% Productivity</u>		<u>1.75% Productivity</u>		<u>2.0% Productivity</u>	
<u>Males</u>	<u>2003</u>	<u>2010</u>	<u>2020</u>	<u>2010</u>	<u>2020</u>	<u>2010</u>	<u>2020</u>
55 to 59	77.6	105.6	124.1	97.9	107.5	90.4	91.6
60 to 64	57.2	77.8	91.5	72.2	79.3	66.6	67.5
65 to 69	32.8	44.6	52.5	41.4	45.4	38.2	38.7
70 to 74	18.8	25.6	30.1	23.7	26.0	21.9	22.2
75+	8.3	11.3	13.3	10.5	11.5	9.7	9.8
<u>Females</u>	<u>2003</u>	<u>2010</u>	<u>2020</u>	<u>2010</u>	<u>2020</u>	<u>2010</u>	<u>2020</u>
55 to 59	65.5	89.1	104.8	82.7	90.8	76.3	77.3
60 to 64	45.3	61.7	72.5	57.2	62.8	52.8	53.5
65 to 69	22.7	30.9	36.3	28.6	31.5	26.4	26.8
70 to 74	11.2	15.2	17.9	14.1	15.5	13.0	13.2
75+	4.1	5.6	6.6	5.2	5.7	4.8	4.8

Source: Authors' calculations unpublished projections provided by the SSA (2001); the U.S. Department of Commerce (2004: D-3); Unicon (2003); U.S. Census Bureau (2000: NP-D1-A); Congressional Budget Office (2004: Table E-1).

Table 4: Pension Coverage of Baby Boomers (1998)

	Percent with Defined Benefit Plans				
	Overall	Men	Women	<= \$30K	>\$30K
Boomers (Age 33-52)	32.4	33.6	31.1	23.6	43.7
Younger Boomers (33-42)	28.9	29.7	28%	21.5	39.4
Older Boomers (43-52)	36.7	38.5	34.6	26.4	48.3

Source: Verma and Lichtenstein (2003)

Appendix Table: Analysis of Retirement Plan Designs and Worklife Benefits on Retirement Age: Regression Results

	<u>Men</u>		<u>Women</u>	
	With Pension Only	With Pension and Worklife	With Pension Only	With Pension and Worklife
Intercept	58.58	57.7	57.53	57.18
Salary Over \$30,000	-0.38 (-1.64)	-0.51 (-2.2)	-0.83 (-4.8)	-0.74 (-4.3)
Age 62	3.35 (21.58)		3.1 (12.0)	
Economic Subsidy Flag	-0.70 (-5.4)	-0.72 (-5.6)	-0.89 (-3.4)	-.838 (-3.2)
Ratio PV of Early Retirement Benefit/PV of Normal Retirement Benefit	0.16 (6.13)	0.016 (6.3)	0.031 (9.12)	.031 (8.98)
Retiree Health Available	-1.66 (-3.72)	-.788 (-1.7)	-1.7 (-7.8)	-1.6 (-5.46)
Caps on Retiree Health Premiums	0.87 (8.10)	0.556 (3.2)	0.74 (3.28)	1.01 (3.58)
Service Related Premiums	1.0 (7.93)	0.016 (-.019)	1.21 (4.8)	0.891 (2.98)
Eldercare Program Available		0.65 (3.44)		0.105 (0.4)
Phased Retirement Available		0.42 (3.7)		1.8 (2.55)
Financial Planning Avail.		-.98 (-4.65)		-.789 (-2.57)
Adj. R-square	.1992	.223	.26	.28
N	3,433	3,433	1,277	1,270

Endnotes

¹ GDP is not a perfect measure of improved standards of living across this period, in part because of the changing labor force behavior of women. For example, in 1946, fewer than half of working-age women in the United States were employed outside the home whereas nearly 80 percent were during 2000. As women entered the workforce, many tasks that were previously done by housewives and not measured in the government's calculation of GDP have been commercialized and are now included in measures of national output. GDP is also uninformative about changing life patterns and environmental factors that affect people's lives nor does it reflect the distribution of output from an economy across society.

² Most projections begin with an estimate of the demand for goods and services based on the size and composition of various sectors of the economy. We have not developed our own macroeconomic projection model since there are several widely used in government and business planning.

³ The CBO only provides estimates of future GDP growth out to 2014. To account for the last half of the next decade, our estimates assume that GDP will continue at the pace of the last projection year provided by the CBO.

⁴ Some have argued that we are embarked on a "new" paradigm in productivity growth, but this conclusion has skeptics (Gordon, 1999). It is unknown whether recent productivity improvements are sustainable; prudence suggests, however, that it is unwise to discount three decades of historical trend.

⁵ Our baseline projection assumes that current labor supply patterns at each age would persist into the future. For example, since 45 percent of women between the ages of 60 and 64 are in the

labor force today, we assumed that 45 percent of women aged 60 to 64 would be in the labor force over the coming decade as well. In addition, we assumed that workers within each age group would continue working the same number of hours per year as they have in recent years. Applying current labor force participation rates and work patterns to the evolving population structure over the coming decade provides a reasonable estimate of the labor supply for each year as a baseline for the remainder of our analysis. By applying constant labor force participation rates in 2000 to population shares over the coming decade, our baseline labor force is projected to be 153.2 million in 2010. The Bureau of Labor Statistics has made similar labor force projections for the 16+ civilian labor force through 2012; it projects the 2012 labor force to be 162.2 million, while our baseline labor force is projected to be 155.0 million (Toossi 2004; 48). The difference is caused by the BLS's expectations of a rather sizable increase in labor force participation rates for the 55+ age group.

⁶ We calculate FTE by dividing the total number of projected hours by a full-time employment level of 2000 hours per year.

⁷ See Nyce and Schieber (2002) for a detailed discussion on the US; Nyce and Schieber (2004) offer a broader look at other developed nations.

⁸ Every two years, the Bureau of Labor Statistics publishes projections of labor force growth anticipated over the coming decade. As a result, that office must also estimate future changes in labor force participation rates. In their most recent estimates, labor force participation rates for persons age 55+ will rise from 34.5 percent in 2002 to 39.7 percent in 2012, equivalent to a 15 percent increase over the coming decade. In a separate analysis with our model, we find that participation rates would need to rise by 39 percent under the 1.5 percent productivity scenario,

26 percent under the 1.75 percent scenario and 15 percent under the 2.0 percent scenario. This indicates that, based on the BLS estimates of labor force growth, productivity rates would need to rise by an annual two percent between 2002 and 2012 in order to meet the output growth estimates set out by the Congressional Budget Office (Toosi 2004).

⁹ Gustman *et al.*(1994) sought to disaggregate these effects but used only the existence of a subsidy, and not the size of the subsidy, as an independent variable.

¹⁰ The actual size of the factor for an actuarially fair adjustment depends on the specific discount and interest rates used.

¹¹ Ippolito (1990) provides an excellent example of how these differ.

¹² These studies suggest that retiree health insurance increases the probability of early retirement by 30 to 80 percent, and reduces the age at retirement by six to 24 months (c.f. Gruber and Madrian, 2002; Karoly and Rogowski, 1994; Blau and Gilleskie, 2001). In a related study, Johnson *et al.*(1999) found that the higher were expected health insurance costs in retirement, the less likely a worker will retire.

¹³ Based on authors' analysis of Watson Wyatt Survey data on phased retirees.