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Retiring Baby-Boomers = A Labor Shortage?

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Summary

Today's low unemployment rate suggests a resumption of the tight labor market conditions that preceded the 2001 recession and that are related to long-running demographic trends. The oldest members of the baby-boom generation turned age 60 at the end of 2006, and every year thereafter, more of this large birth-cohort will move into the ages when workers traditionally have retired. Consequently, the business community in particular has asserted that the future supply of labor will fall short of employer demand and that U.S. economic growth and competitiveness would be put in jeopardy.

Based upon a CRS analysis of the current employment patterns of baby-boomers across industries and occupations and of occupational employment projections within industries, many industries throughout the economy (e.g., insurance, manufacturing, mining, public administration, real estate, transportation, wholesale trade, utilities) appear to be highly dependent on baby-boom workers and to face the prospect of tightening labor market conditions as more of them move into the traditional retirement ages. Baby-boom dependent industries that seek both to replace all boomers who retire from occupations critical to their operations and to increase employment in those fields could face the most intense competition for workers in the near term (e.g., educational services and health care services).

An actual shortage of workers is unlikely in the long run because companies can be expected to take various actions in response to the accelerating slowdown in labor force growth — although it appears few have yet done so. A key assumption of the labor shortage scenario is that firms must have more workers in the future than at present for the economy to continue to grow. Proponents of this viewpoint thus are asserting that rates of output growth and labor force growth are closely and directly linked. But, the economy historically has been able to expand faster than the labor supply by more efficiently utilizing the available pool of workers.

Another assumption underlying the shortage scenario is that baby-boomers will sharply curtail their work activity once in their sixties. The degree to which older persons participate in the workforce already has risen due, in part, to changes that Congress made to the Social Security retirement system and age discrimination law. Some have urged Congress to make further modifications to encourage more older individuals to continue working and more employers to hire and retain them. Similarly, Congress has been urged to further amend immigration law to permit more foreign labor to be brought into the country to fill jobs for which U.S. workers are deemed to be in short supply.

Additionally, those who assert that the need to replace retiring baby-boomers will result in a shortage of workers usually consider only the labor supplied by the baby-bust generation. This 45 million birth-cohort, which immediately followed the 76 million baby-boomers into the labor force, is not the only source of replacement workers: the 72 million members of the echo-boom began to enter the workforce during the 1990s. Access to foreign labor through offshore outsourcing, in addition to guest worker programs, also is often overlooked in the context of shortages.

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U.S. employers again have turned their attention to the shortage of labor they anticipate will occur in the not-too-distant future. Concern about this possibility waned when the historically low unemployment rates from 1998 to 2000 rose during, and for some two years after, the March-November 2001 recession. In 2006, however, the national unemployment rate has remained consistently below 5%.[1] This suggests resumption of the tight labor market conditions that preceded the cyclical slowdown and that are related to long-running demographic trends. The oldest members of the baby-boom generation will reach 60 years of age by the end of 2006, and every year thereafter, more of the 76 million persons born between 1946 and 1964 will move into their early 60s, when most workers traditionally have retired.[2] As a consequence, observers — particularly members of the business community — have expressed the belief that the supply of U.S. labor will fall short of employer demand in coming decades.[3]

While the public budgetary effects of the aging of the baby-boom cohort have been much studied,[4] the implications for the private economy have been less thoroughly researched. Proponents of the labor shortage scenario assert that the nation's rate of economic (output) growth will slow because worker-starved U.S. firms would be unable to produce the quantity of goods and services demanded by U.S. consumers. They further argue that the competitive position of U.S. industries will suffer because foreign companies would expand sales not only to the domestic market but also to other markets now supplied by U.S. firms. Even if businesses

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[1] Labor force data are available in the U.S. Bureau of Labor Statistics (BLS), *Employment and Earnings*, or at the BLS website [http://stats.bls.gov].

[2] According to (1) a measure of the average age of initial receipt of Social Security retirement benefits and Social Security disability benefits for workers 50-65 years old and (2) a measure of the median age of withdrawal from the labor force for workers age 50 and older based upon Current Population Survey data, people usually retired at about age 63 during the 1970s and 1980s and at about 62 during the 1990s. For more information see Murray Gendell, "Retirement Age Declines Again in 1990s," *Monthly Labor Review*, October 2001.

[3] See, for example, the Aspen Institute, *Grow Faster Together, or Grow Slowly Apart*, 2002; John A. Challenger, "The Coming Labor Shortage," *The Futurist*, September/October 2003; Paul Kaihla, "The Coming Job Boom," *Business 2.0*, September 2003; and the U.S. Chamber of Commerce, *The State of American Business 2006*.

[4] Budgetary effects chiefly relate to the solvency of Social Security, Medicare, and Medicaid. For additional information, see CRS Report RS22008, *Federal Spending for Older Americans*, by April Grady, Bob Lyke, and Richard Rimkunas, and CRS Report RL32981, *Age Dependency Ratios and Social Security Solvency*, by Laura Shrestha.

were able to coax more individuals into the U.S. labor force by bidding up wages, it is claimed that a similar end-result could occur. Employers would try to pass the increased cost of production onto buyers, resulting in higher prices that, among other things, would diminish the purchasing power of U.S. workers' wages. The market share of U.S. businesses could shrink as well, if domestic and foreign purchasers react to these higher prices by switching to less costly goods and services from other countries.

This frequently voiced view omits actions that employers could take, other than raising wages, to ameliorate the labor market tightness they expect to occur when baby-boomers stop working. It also assumes that baby-boomers will behave similarly to preceding generations of older workers in terms of the rate at which they participate in the labor force and the length of their working lives. The scenario similarly does not consider that Congress might take legislative action to mitigate the effect on the private economy of a perceived shortfall of workers — something it has done in the recent past (e.g., loosening and raising the cap on H-1B visas for foreign workers in professional occupations). In addition, shortage proponents often paint firms with a broad brush, raising the question of whether each firm is as likely as the next to be affected by the baby-boomers' retirement.

This report takes a close look at the labor shortage scenario prompted by baby-boomers moving from the work phase to the retirement phase of their lives. It first sets forth past and projected trends in the supply of labor available to U.S. businesses in general. The potential impact of the baby-boom generation's withdrawal from the workforce on different industries, and the occupations within them, is then analyzed. The report concludes with an examination of factors that could affect the likelihood of an imbalance between labor supply and demand in the coming years.

A Slowdown in the Supply of Labor

With 149 million persons employed or actively seeking employment in 2005, the labor force more than doubled in size since 1965. (See **Table 1**.) Within the 40-year period, however, the pace of growth fell by almost half during the most recent compared to the first 20 years.

The diminished rate of labor force growth in recent decades is related, in part, to the substantially reduced number of births in the United States. The cohort of some 76 million individuals born between 1946 and 1964 was aptly dubbed the baby-boom generation. As the members of this very large group entered the workforce 16 or more years after birth,[5] the baby-boomers greatly increased the aggregate supply of labor: by 25.9% between 1965 and 1975, and by 23.1% between 1975 and 1985. (See column 2 of **Table 1**.) The baby-boom generation was followed into the labor force by the suitably named baby-bust cohort, which totals some 45 million persons

[5] The official definition of the labor force covers those aged 16 and older.

born between 1965 and 1976.[6] The small size of the baby-bust group contributed to the 9.2% decrease in young workers and the marked ebbing of overall labor force growth (to 14.6%) in the 1985-1995 period.

Table 1. Civilian Labor Force by Age Group

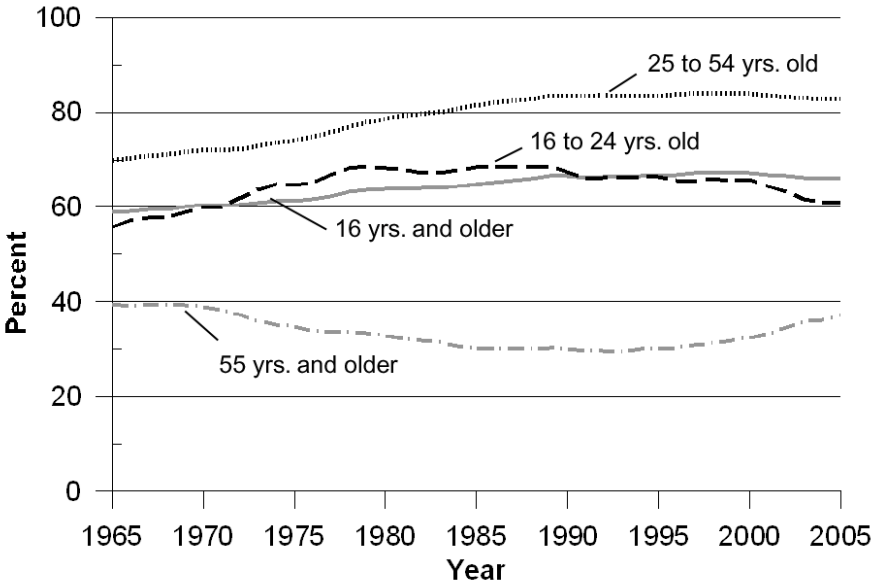
Year	Civilian labor force (numbers in thousands)			
	Total, 16 years and older	16-24 years old	25-54 years old	55 years and older
1965	74,455	14,169	46,829	13,458
1975	93,775	22,621	56,851	14,303
1985	115,461	23,619	76,944	14,898
1995	132,304	21,453	95,172	15,680
2005	149,320	22,290	102,773	24,257
Period	**Change in size of the civilian labor force (percent)**			
1965-1975	25.9	59.7	21.4	6.3
1975-1985	23.1	4.4	35.3	4.2
1985-1995	14.6	-9.2	23.7	5.2
1995-2005	12.9	3.9	7.9	54.7

Source: U.S. Bureau of Labor Statistics data from the Current Population Survey.

During the 1990s, the baby-boomers continued to buoy the overall supply of labor. By 1989, the youngest baby-boomers had reached 25 years of age, and the oldest members of the group were 43 years of age. The entire cohort thus was in the prime work-age group (25-54 years old), which historically has had the highest rate of participation in the labor force. (The labor force participation rate, shown by age over time in **Figure 1**, below, is the share of the civilian noninstitutional population that is employed or actively seeking employment.) In 2005, for example, more than 4 of every 5 persons in the population aged 25-54 were members of the labor force; in contrast, about 3 of every 5 individuals aged 16-24 had a job or were looking for one, while still fewer persons 55 years and older — less than 2 in 5 — were attached to the workforce. The advancement of the numerous baby-boomers into the prime work-ages consequently offset, in part, the baby-bust's dampening impact on the supply of labor during the 1990s.

[6] Karl Hartig, "Generation Gaps: Population Growth Affects History's Course," *Wall Street Journal* classroom edition, 1996, available at [http://karlhartig.com/chart/demographic.pdf]. (Hereafter referred to as Hartig, *Generation Gaps*.)

Figure 1. Labor Force Participation by Age Group



Source: U.S. Bureau of Labor Statistics data from the Current Population Survey.

After 2000, however,

> a segment of the baby-boomer population passes into the 55-years-and-older group and thus moves from a group with a high participation rate in the labor force to an age category with a much lower participation rate, causing the overall participation rate to decrease.[7]

The aging of female baby-boomers already has contributed to the seeming end of the decades-long rise in women's labor force participation.[8] The recent movement of older baby-boomers into the age range of low rates of supply to the labor force is shown in column 5 of **Table 1**.

The youngest members of the baby-boom cohort will have turned 55 years old by 2019, which could cause the workforce to grow more slowly between 2000 and 2019 than it did between 1980 and 2000. Indeed, the U.S. Bureau of Labor Statistics (BLS) projects that the decelerating rate of increase in the labor supply could continue through 2020. Although the labor force is projected to expand from 141 million people in 2000 to 165 million people in 2020, the gain will steadily dwindle

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[7] Mitra Toossi, "Labor Force Projections to 2014: Retiring Boomers," *Monthly Labor Review*, November 2005, p. 30. (Hereafter referred to as Toossi, *Labor Force Projections to 2014*.)

[8] Timothy Schiller, "After the Baby Boom: Population Trends and the Labor Force of the Future," *Business Review*, fourth quarter 2005.

— falling from 1.1% annually over the 2000-2010 period to 0.6% annually over the 2010-2015 period to 0.2% annually over the 2015-2020 period.[9]

Further contributing to the slowdown is the progress of the small baby-bust group into the age range with strong attachment to the labor force. The oldest members of the baby-bust generation turned 25 years of age in 1990; the youngest, in 2000. They will be among those replacing the entire baby-boom generation in 2020, when it will have aged out of the 25- to 54-year-old group. Despite the high rate of labor force participation for those in the prime work-ages shown in **Figure 1**, the small number of baby-bust workers means that they

> will not be able to compensate for the large cohorts of baby boomers leaving the prime-aged group and moving into a group with much lower participation rates. The result is a decrease in the overall labor force participation rate and a slower rate of growth of the labor force.[10]

Which Employers Are Most Likely to be Affected?

The slowdown in the supply of labor that employers have begun to encounter has led them to worry about how much harder it will become to hire replacements for baby-boomers as more of them reach the retirement phase of their lives during the coming decades. The ebbing of labor force growth could present more of a difficulty for some firms than others, depending on the age composition of their current workforces. For example, mature industries (e.g., steelmakers) in contrast with emerging industries (e.g., biotechnology) did much of their hiring many years ago; hence, baby-boomers probably comprise a larger share of the workforces of mature than emerging industries. Still other industries are known for having fairly young workforces (e.g., leisure and hospitality), and are less likely to have many jobs to fill as a result of retirements. (Instead, these other industries probably are more concerned about the relatively small additions to the youth labor force shown in **Table 1**, which is affected by more than demographic trends.[11])

The first step in assessing the comparative hiring needs of employers associated with the retirement of the baby-boom generation was to calculate baby-boomers' share of employment, overall and by industry in 2005, utilizing Current Population

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[9] Mitra Toossi, "A Century of Change: the U.S. Labor Force, 1950-2050," *Monthly Labor Review*, May 2002. (Hereafter referred to as Toossi, *A Century of Change*.)

[10] Toossi, *Labor Force Projections to 2014*, p. 30.

[11] One such factor is the rate of school enrollment among 16- to 24-year-olds. Because school enrollment has risen since the mid-1980s and because students historically have worked to a lesser extent than nonstudents, the overall labor force participation rate of 16- to 24-year-olds has fallen. In addition, the decline in youth's labor force participation has been steeper among students. Helen McEwen, Pia Orrenius, and Mary Wynne, "Opting Out of Work: What's Behind the Decline in Labor Force Participation?", *Southwest Economy*, no. 6, November/December 2006.

Survey (CPS) data.[12] The industries estimated to have employed a significantly above-average percentage of baby-boomers in 2005 (more than 42.1% of 41- to 59-year-olds) are considered the most prone to the effect of the group's withdrawal from the labor force.[13] Within each of the "baby-boom dependent industries," CRS next estimated the baby-boomers' share of employment by occupation to determine the job categories most likely to develop vacancies due to retirements. (The size of the CPS sample limits the degree of detail by occupation within industries that could be estimated accurately.)

In addition to identifying baby-boom dependent industries and the occupations within them, the section immediately below discusses possible reasons for them having a very high prevalence of 41- to 59-year-olds. What the impending retirement of baby-boomers might actually mean for the industries' future occupational staffing requirements is analyzed thereafter.

Baby-Boom Dependent Industries

Some 24 of the 51 industries included in the analysis employed a significantly above-average share of baby-boomers in 2005.[14] Although half of the 24 industries are in manufacturing, baby-boom dependent industries span the economy — from the following industries in the goods-producing sector —

- forestry, fishing, and hunting;
- mining, including oil and gas extraction; and
- 12 manufacturing industry groups (i.e., textile, apparel, and leather manufacturing; paper and printing; petroleum and coal products; chemical manufacturing; plastics and rubber products; nonmetallic mineral product manufacturing; primary metal and fabricated metal

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[12] The latest annual data at the time the study originally was undertaken were for 2005. Substantially the same results are likely based on 2006 data.

[13] The CPS is a monthly sample of about 50,000 households drawn from the civilian noninstitutional population. Estimates of employment and other variables derived from the CPS thus are subject to sampling error. Researchers utilizing the CPS generally construct confidence intervals, which provide information about the accuracy of the estimates. Confidence intervals were calculated for the differences, in 2005, between the percentage of all workers who were baby-boomers and the percentage of workers in each industry and occupation who were baby-boomers. The text of this report discusses only those industries and occupations in which the estimated share of employment accounted for by baby-boomers is significantly greater than their estimated share of total employment (i.e., the differences are not likely due to sampling error).

[14] Among the 51 industries included in the study, those that employed lesser shares of baby-boomers in 2005 included agriculture; construction; four manufacturing industries (wood products, furniture and fixtures, food, and beverage and tobacco products); retail trade; publishing industries (except Internet); motion picture and sound recording; broadcasting (except Internet); Internet publishing and broadcasting; telecommunications; Internet service providers and data processing services; finance; rental and leasing services; professional and technical services; administrative and support services; waste management and remediation services; social assistance; arts, entertainment, and recreation; accommodation; food services and drinking places; repair and maintenance; and personal and laundry services.

products; machinery manufacturing; computer and electronic products; electrical equipment, appliance, and component manufacturing; transportation equipment manufacturing; and miscellaneous manufacturing);

to the following industries in the service-producing sector —

- wholesale trade;
- transportation and warehousing;
- utilities;
- insurance;
- real estate;
- educational services (e.g., public and private elementary and secondary schools);
- hospitals, private and public;
- health care services, except hospitals;
- membership associations and organizations; and
- public administration (excluding public schools and hospitals).

The utilities industry (e.g., private and public establishments that provide electricity, natural gas, and water) has the highest proportion of baby-boomers, with almost 3 of every 5 workers between 41 and 59 years old in 2005. (See column 2 of **Table 2**.) One possible reason for the marked incidence of baby-boomers in the industry is its comparatively high unionization rate. While just 12.5% of all persons employed in 2005 were union members, according to CPS data, the figure among utilities workers was more than twice that, at 28.8%. Older workers are likely to be more prevalent in highly unionized industries that "thus favor seniority and generally have lower turnover rates due to higher wages and better benefits than nonunion jobs."[15] In terms of retirement benefits in particular, the type of pensions that unions historically have negotiated with management — defined-benefit plans — encourages long job tenure because its benefit formula typically is based on a combination of peak-years' earnings and years of service.

Unionization probably also explains, in part, why 50.4% of employees in the transportation and warehousing industry (e.g., railroads and airlines) and 49.3% of employees in the 12 manufacturing industries combined are members of the baby-boom generation.[16] (See column 2 of **Table 2**.) In addition, the baby-boom

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[15] Arlene Dohm, "Gauging the Labor Force Effects of Retiring Baby-Boomers," *Monthly Labor Review*, July 2000, p. 20. (Hereafter referred to as Dohm, *Gauging the Labor Force Effects of Retiring Baby-Boomers*.)

[16] The unionization rate in transportation and warehousing was 31.9% in 2005, according to CRS estimates derived from CPS data. A still slightly above-average share of manufacturing workers were union members in 2005 (13.0%), following a steady decline in the unionization rate from more than 30% during the 1970s, when some baby-boomers were deciding whether to follow in the footsteps of their factory-worker parents. Data on trends in union membership can be found in Barry T. Hirsch and David A. Macpherson, *Union Membership and Earnings Data Book*, Washington, DC: Bureau of National Affairs, (continued...)

dependent manufacturing industries did much of their hiring many years ago and have grown their workforces little, if at all, since then. As an example, consider transportation equipment manufacturing: When the first members of the baby-boom generation were born in 1946, the industry employed 1.2 million production and nonsupervisory workers; it was an abundant source of jobs for young workers during the next two decades, but since factory employment peaked at 2.1 million in 1968, many more workers have been permanently let go than have been hired.[17] The order in which unionized employees usually are laid off — namely, in an inverse relationship to seniority (last-hired, first-fired) — has served to reinforce the marked presence of baby-boomers on these manufacturers' payrolls. So, too, has manufacturing's image reportedly dissuaded younger persons from considering the field when making career decisions.[18]

More than three out of every 10 persons employed by federal, state, and local governments were union members in 2005, despite variability across jurisdictions in whether and which employees (e.g., education and public safety) can be organized.[19] Variability also exists in the scope of negotiable subjects, with all levels of government often excluding leave and benefit policies from the collective bargaining process.[20] In these instances, legislators have passed laws that prescribe human resources policies or the precepts that underlie them. With regard to retirement benefits, elected officials usually have provided defined-benefit pensions to public employees; as noted above, traditional pensions encourage lengthy job tenure and hence, older workforces. Almost all full-time state and local government workers (including teachers at public elementary, secondary, and postsecondary institutions) were covered by defined-benefit plans in 1994, which enable them to retire with unreduced benefits at age 55 or younger and typically after 30 years of tenure.[21] All federal employees also are eligible for a defined-benefit pension plan. Like their state and local counterparts,

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[16] (...continued)
2006.

[17] According to the BLS Current Employment Survey (CES), production worker employment in the transportation equipment industry was 1.3 million in 2005. (There is a break in data consistency starting in 2003, when the CES switched from the Standard Industrial Classification to the North American Industrial Classification system.)

[18] See the U.S. Department of Labor, Employment and Training Administration, *Advanced Manufacturing Industry*, which is available at [http://www.doleta.gov/BRG/pdf/Advanced%20Manufacturing%20Report%2011.1.05.pdf].

[19] The unionization rate in public administration in 2005 was 31.4%, according to CRS estimates derived from CPS data. It was 34.0% in educational services (which include but are not limited to *public* elementary, secondary, and postsecondary institutions).

[20] Morris A. Horowitz, *Collective Bargaining in the Public Sector*, NY: Lexington Books, 1994.

[21] U.S. Bureau of Labor Statistics, *Employee Benefits in State and Local Governments, 1994*," DC: U.S. Govt. Print. Off., 1996.

> "[m]any federal employees become eligible to retire at age 55 with 30 years of service, and the average retirement age was 60.4 in 2004, according to OPM data."[22]

A little over one-half of public employees (excluding school personnel) and 48.7% of workers in the (public and private) educational services industry were baby-boomers in 2005, as shown in column 2 of **Table 2**. But in that year, just 20%-25% of baby-boom employees might have been retirement-eligible, based on their age (i.e., at least 55 years old).[23] Going forward, then, retirements could rise considerably in the public administration and educational services industries as many more of these employees reach the ages associated with pension eligibility.

Yet the impact of baby-boomers' withdrawal from the labor force can be expected to differ across industries, depending on their future employment trends. Those industries that reduce the size of their workforces will not need to fill every vacancy. A number of baby-boom dependent industries in the goods-producing sector are projected to employ fewer workers in 2014 than they did in 2004: mining; 10 of the 12 manufacturing industries; and forestry, fishing, and hunting.[24] The only baby-boom dependent industry in the service-producing sector projected to experience declining employment is utilities. However, even industries in which total employment is projected to decrease might need to replace employees who retire from particular occupations. In other words, industries with declining aggregate employment (e.g., paper and chemical manufacturers) may, at a minimum, maintain employment levels in certain occupations (e.g., engineers, sales and customer service representatives, and assemblers and fabricators).[25]

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[22] Stephen Barr, "Federal Diary," *The Washington Post*, July 11, 2006, p. D4.

[23] Calculated by CRS from 2005 CPS data.

[24] The two baby-boom dependent manufacturing industries that BLS projected could create new jobs between 2004 and 2014 are nonmetallic mineral products and transportation equipment. See Jay M. Berman, "Industry Output and Employment Projections to 2014," *Monthly Labor Review*, November 2005.

[25] BLS, *National Matrix, Employment by Industry, Occupation, and Percent Distribution, 2004 and Projected to 2014*, available at the BLS website [http://stats.bls.gov]. (Hereafter referred to as BLS, *National Matrix*.)

Table 2. Baby-Boom Dependent Industries by Selected Baby-Boom Dependent Occupations

Baby-boom dependent industries by baby-boom dependent occupations[1]	Baby-boomers as a share of total employment, by industry and occupation[2]	Distribution of baby-boomers within industries by occupation[3]
Forestry, fishing, and hunting industry	52.3	—
Farming, fishing, and forestry occupations	52.0	28.5
Mining industry	50.5	—
Manufacturing industry[4]	49.3	—
Management occupations	59.3	7.6
Business and financial operations occupations	49.8	1.7
Architecture and engineering occupations	50.4	3.9
Sales and related occupations	49.4	1.7
Office and administrative support occupations	48.7	4.8
Installation, maintenance, and repair occupations	54.7	2.6
Production occupations	47.3	19.5
Wholesale trade industry	44.9	—
Management occupations	52.8	4.8
Sales and related occupations	49.8	18.2
Transportation and warehousing industry	50.4	—
Management occupations	55.6	3.9
Office and administrative support occupations	54.2	13.8
Installation, maintenance, and repair occupations	55.5	3.1
Transportation and material moving occupations	47.6	23.8
Utilities industry	59.8	—
Management occupations	73.0	7.8

Baby-boom dependent industries by baby-boom dependent occupations[1]	Baby-boomers as a share of total employment, by industry and occupation[2]	Distribution of baby-boomers within industries by occupation[3]
Office and administrative support occupations	52.8	9.8
Construction and extraction occupations	50.9	5.5
Installation, maintenance, and repair occupations	60.4	9.2
Production occupations	63.0	11.3
Insurance industry	47.7	—
Management occupations	55.3	5.0
Business and financial operations occupations	48.0	11.3
Sales and related occupations	48.9	13.4
Real estate industry	44.8	—
Management occupations	45.6	12.2
Business and financial operations occupations	55.4	3.0
Sales and related occupations	46.3	16.8
Educational services industry	48.7	—
Management occupations	57.6	4.4
Business and financial operations occupations	51.3	0.7
Community and social service occupations	57.2	1.3
Education, training, and library occupations	47.6	27.1
Health practitioner and technical occupations	53.2	0.9
Food preparation and serving related occupations	56.1	1.8
Building and grounds cleaning and maintenance occupations	59.8	2.7
Office and administrative support occupations	47.8	4.5

Baby-boom dependent industries by baby-boom dependent occupations[1]	Baby-boomers as a share of total employment, by industry and occupation[2]	Distribution of baby-boomers within industries by occupation[3]
Installation, maintenance, and repair occupations	52.3	0.6
Hospital industry	47.9	—
Management occupations	62.4	3.6
Health care practitioner and technical occupations	48.3	24.3
Building and grounds cleaning and maintenance occupations	52.6	1.9
Office and administrative support occupations	47.3	7.3
Health care services (except hospitals) industry	45.4	—
Management occupations	58.2	3.3
Life, physical, and social service occupations	51.5	0.8
Health care practitioner and technical occupations	50.9	16.2
Membership associations and organizations industry	46.8	—
Management occupations	52.2	7.0
Community and social service occupations	48.8	16.2
Office and administrative support occupations	48.4	9.4
Public administration industry	51.8	—
Management occupations	63.9	5.9
Business and financial operations occupations	56.2	4.5
Computer and mathematical science occupations	55.5	1.9
Architecture and engineering occupations	56.4	1.5

Baby-boom dependent industries by baby-boom dependent occupations[1]	Baby-boomers as a share of total employment, by industry and occupation[2]	Distribution of baby-boomers within industries by occupation[3]
Life, physical, and social service occupations	52.9	1.7
Community and social service occupations	49.2	2.5
Legal occupations	53.2	2.1
Health care practitioner and technical occupations	50.6	1.5
Office and administrative support occupations	54.1	11.0
Construction and extraction occupations	68.7	1.1
Installation, maintenance, and repair occupations	57.8	1.3

Source: CRS estimates from 2005 Current Population Survey data.

Note: Only occupations within each industry that employed at least 60,000 baby-boomers are included.

1. Baby-boom dependent industries and baby-boom dependent occupations are those in which the share of 41- to 59-year-olds is significantly greater than average (i.e., 42.1%). In 2005, baby-boomers were between 41 and 59 years of age.

2. The column displays the proportions of all workers in an industry who are between 41 and 59 years old and the proportions of the industry's workers in an occupation who are baby-boomers. For example, baby-boomers comprise 44.9% of all workers in the wholesale trade industry and baby-boomers comprise 52.8% of the industry's managers.

3. The column displays the proportions of industry employment accounted for by 41- to 59-year-olds working in particular occupations. For example, baby-boomer managers represent 4.8% of all workers in the wholesale trade industry.

4. The 12 manufacturing industries are textile, apparel, and leather manufacturing; paper and printing; petroleum and coal products; chemical manufacturing; plastics and rubber products; nonmetallic mineral product manufacturing; primary metal and fabricated metal products; machinery manufacturing; computer and electronic products; electrical equipment, appliance, and component manufacturing; transportation equipment manufacturing; and miscellaneous manufacturing.

Baby-Boom Dependent Occupations

Almost all baby-boom dependent industries have staffed their management ranks with substantial shares of baby-boomers, as shown in column 2 of **Table 2**. In fact, 41- to 59-year-olds accounted for a significant portion of managers economy-wide in 2005, at 52.8%, on average.[26] If BLS projections of the creation of some 1 million new management positions between 2004 and 2014 prove correct, then the effect of the baby-boom's retirement from the occupational group could be widespread.[27]

Whether it would be difficult to replace retired managers is another matter. One case study of a large manufacturing firm estimated that increased retirements among senior management would result in an almost imperceptible decrease in job tenure and slightly faster promotions from the ranks one step down the corporate ladder, if all replacements were internal. "This is true for most organizations, and the reason is because in a typical pyramidal-shaped organizational chart, the levels below have many more incumbents than those above."[28] There is anecdotal evidence, as well, of baby-boomers who survived corporate restructuring (which pared the number of executive positions) not being in a hurry to retire. According to a survey of senior-level managers, 44% planned to continue working past age 64.[29] The phenomenon of older workers failing to make way for others to advance is referred to as the "gray ceiling," and it seemingly extends beyond management occupations (to lawyers, for example).

Many of the baby-boom dependent industries also rely heavily on 41- to 59-year-olds to fill office and administrative support jobs, as shown in column 2 of **Table 2**. The 12 manufacturing industries, wholesale trade, and government (excluding public educational institutions) are projected to employ fewer office and administrative support personnel over the 2004-2014 period.[30] These industries consequently could utilize the retirement of baby-boomers as the least painful way of coping with reduced occupational demand.

Other occupational groups with a very high incidence of baby-boomers appear to be more industry-specific. For example, the retirement of baby-boomers from production jobs (e.g., machinists) could create difficulties for manufacturers. Not only did baby-boomers comprise almost one-half of production employment in baby-boom dependent manufacturing industries in 2005, but 41- to 59-year-old production workers also accounted for a large share (about one-fifth) of the industries' workforce. (See columns 2 and 3 in **Table 2**.) Although manufacturers' demand for

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[26] CRS estimates derived from CPS data.

[27] Daniel E. Hecker, "Occupational Employment Projections to 2014," *Monthly Labor Review*, November 2005.

[28] Peter Cappelli, "Will There *Really* Be a Labor Shortage?," *Organizational Dynamics*, vol. 32, no. 3, p. 226. (Hereafter referred to as Cappelli, *Will There Really Be a Labor Shortage?*.)

[29] Anne Fisher, "Are You Stuck in Middle Management Hell?" *Fortune*, August 9, 2006.

[30] BLS, *National Matrix*.

production workers generally is projected to decrease between 2004 and 2014, several of the baby-boom dependent manufacturing industries could increase employment in specific occupations (e.g., machine setters, operators, and tenders).[31]

Much the same can be said about transportation and material moving occupations (e.g., drivers and stock movers) in the transportation and warehousing industry. Baby-boomers made up nearly one-half of transportation and material moving workers in the industry in 2005, and 41- to 59-year-olds in the occupational group accounted for close to one-fourth of the industries' workforce. (See columns 2 and 3 of **Table 2**.) In this case, the industry is projected to add 331,000 workers in transportation and material moving occupations over the 2004-2014 period, with much of the job growth accounted for by motor vehicle operators (e.g., heavy and tractor-trailer truck drivers).[32]

Similarly, the retirement of baby-boomers from health care practitioner and other related technical occupations (e.g., physicians, nurses, therapists, and health technologists) could pose supply problems for the health care services industry. About one-half of the individuals employed in this occupational group by hospitals and other health care services establishments were aged 41-59 in 2005. (See column 2 of **Table 2**.) These baby-boomers represented 24.3% of total employment at hospitals and 16.2% of total employment at other health care services enterprises (e.g., nursing and residential care facilities), as shown in column 3 of the table. In addition, the health care services industry employed the majority of persons working as health care practitioners and in related technical occupations in 2004, and the industry is projected to increase employment in these occupations by more than 1.3 million between 2004 and 2014.[33]

For the same reasons, the retirement of baby-boomers from educational, training, and library occupations could cause difficulties for the educational services industry (public and private) in particular. Baby-boomers in 2005 comprised 47.6% of the industry's employment in the occupational group, of which elementary and secondary school teachers are a large part. These baby-boomers also are important to the functioning of the industry, accounting for more than one-fourth of its total employment. (See columns 2 and 3 of **Table 2**.) Moreover, state and local government educational agencies and private providers of educational services are projected to increase their employment of educational, training, and library workers by about 1.4 million between 2004 and 2014.[34] Speaking more generally, the retirement of baby-boomers could have a substantial effect on the educational services industry because of its large number of baby-boom dependent occupations.

Public administration also appears to have many baby-boom dependent occupations. "[T]he wide variety of jobs and differing growth among the three branches of government, with employment projected to decline in Federal

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[31] Ibid.

[32] Ibid.

[33] Ibid.

[34] CRS calculations based on the BLS *National Matrix*.

government and to grow in State and local government," makes it difficult to gauge the impact of baby-boomer retirements on the industry, however.[35]

A Baby-Boom Induced Shortage of Labor?

Thus, many industries throughout the economy are very dependent on baby-boom workers and seemingly face the prospect of tightening labor market conditions as these individuals move toward the typical retirement ages. Employers with older workforces that seek not only to replace all baby-boomers exiting occupations critical to their operations, but also to increase employment in those fields, could face especially intense competition for labor in the short run.

An actual shortage of labor is unlikely in the long run, however, because businesses can be expected to raise wages, thereby

- prompting some pension-eligible baby-boomers to continue working,
- enticing those outside the labor force (e.g., discouraged workers)[36] to enter, or those employed part-time to increase their work hours,[37]
- encouraging individuals qualified for jobs that are in particularly high demand, but who are employed in other fields, to change positions, and
- motivating youngsters attending school and unemployed persons, among others, to prepare for these now more lucrative occupations.

Admittedly, these accommodations to the new labor market realities could take some time to occur. The adjustment period could be prolonged if companies are slow to make non-wage changes as well, such as relaxing hiring standards or providing training to persons who, but for the tight labor market, would not have been hired (e.g., high school dropouts) or retained (e.g., employees with outdated skills). In addition, firms will vary in their ability to alter compensation and other human resources policies, making them unequal competitors in their attempt to attract and retain an adequate number of workers.

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[35] Dohm, *Gauging the Labor Force Effects of Retiring Baby-Boomers*, p. 24.

[36] There were 7.6 million persons in the labor force who lacked jobs in 2005, according to BLS data. Only workers who have actively sought employment in the four-week period before the monthly CPS is conducted are considered to be unemployed. Unemployment data thus understate the degree of slackness in the labor market partly because they do not include discouraged workers, who numbered 436,000 in 2005. Discouraged workers are individuals who want a job and looked for one within a year's time but are not currently searching because they believe no jobs are available or none for which they are qualified.

[37] There were 32.3 million persons working part-time (i.e., less than 35 hours a week) in 2005, according to BLS data. Most (27.9 million, or 86.5%) chose to work short schedules because they were in school or had family obligations, for example. The remainder were involuntarily employed part-time — that is, they would have preferred to work longer hours.

An "Adequate" Number of Workers

An underlying assumption of the labor shortage scenario is that, in order for the U.S. economy to continue growing, companies must have more workers on their payrolls in the future than at present. Proponents of this viewpoint essentially are arguing that the rate of economic growth is closely and directly linked to the pace of labor force growth. The U.S. economy generally has been able to expand faster than the labor supply, however, by more efficiently utilizing the available pool of workers. Former Federal Reserve Chairman Alan Greenspan noted that

> An expansion of labor-force participation by immigrants and the healthy elderly offers some offset to an aging population. However, it is heightened growth of output per worker that presents the greatest potential to boost the growth of gross domestic product.[38]

Confronted with a bidding war for relatively scarce workers, businesses could well try to increase productivity through substitution of less expensive capital for labor and initiation of organizational and technological innovations. Indeed, a good deal of empirical research indicates that past slowdowns in labor force growth have been accompanied by acceleration in productivity growth.[39] This historical relationship provides some optimism for future increases in the productivity growth rate partly offsetting the diminishing pace of labor force growth in coming decades.

There are factors in addition to the rate of increase in the size of the workforce that affect the growth rate of labor productivity. A key variable is the quality of labor — that is, the amount of knowledge embodied in a nation's workers. One analysis tentatively estimated that, while business investment in traditional kinds of capital (e.g., expenditures on plant and equipment) might have accounted for a little more than 27% of the growth in output per hour worked between 1995 and 2003, business investment in intangible forms of capital (e.g., expenditures on employee training) and changes in labor composition (e.g., educational attainment) might have accounted for 38% of the increase in labor productivity over the period.[40]

It has been suggested that the human capital characteristics of recent migrants to the United States and their descendants might attenuate the historically inverse relationship between labor force and productivity growth, however. The United States has been experiencing a shift in the countries of origin of immigrants, from European toward Mexico and other Latin American countries. Because Latin American immigrants generally have completed fewer years of school than European

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[38] Testimony of Federal Reserve Chairman Alan Greenspan before the Special Committee on Aging, U.S. Senate, Hearing on Aging Global Population, February 27, 2003, available at [http://www.federalreserve.gov/boarddocs/testimony/2003/20030227/default.htm].

[39] Jane Sneddon Little and Robert K. Triest, "The Impact of Demographic Change on U.S. Labor Markets," *New England Economic Review*, first quarter 2002, p. 56-57. (Hereafter referred to as Little and Triest, *The Impact of Demographic Change on U.S. Labor Markets*.)

[40] Carol Corrado, Charles Hulten, and Daniel Sichel, "Intangible Capital and Economic Growth," *Finance and Economics Discussion Series Working Paper*, Federal Reserve Board, April 2006.

immigrants, the change in country mix has lowered the average educational attainment of recent immigrants. The impact this will have on the human capital possessed by future members of the U.S. labor force depends of such factors as trends in source countries' educational attainment and the rate of convergence in years of schooling completed by immigrants' descendants and the native-born population. Although there have been marked gains in high school completion among recent cohorts of Mexican migrants to the United States, the wide gap in educational attainment between native-born and Mexican workers is likely to persist for quite some time. Years of school completed by U.S.-born Hispanics (i.e., second- and subsequent-generation Hispanics) also are expected to remain well below the U.S. average. These findings led Little and Triest to surmise that the average level of educational attainment among U.S. workers could be dampened as a result of the labor force's increasingly Hispanic composition, unless the educational status of Hispanic youth changes dramatically.[41]

In contrast, Census Bureau staff who developed projections of educational attainment based upon alternative assumptions — continued immigration and no immigration — found the net impact of immigrants on overall schooling levels in the future to be indeterminate. The counterfactual case (zero immigration) showed an increase of a few percentage points in the rate of high school completion, while the impact on college completion was uncertain. The continued immigration case showed little difference in future educational attainment. Because still other projections by ethnicity revealed that all groups could have rising levels of schooling, Day and Bauman surmised "that changes in ethnic composition [of the U.S. population toward Hispanics, for example] do not suppress educational attainment to the extent some observers have feared."[42]

Some analysts are not sanguine about the economy's ability to achieve rates of productivity growth sufficient to fully compensate for the slowdown in labor force growth. Nyce and Schieber projected labor supply, based on continuation of current patterns of labor force participation by age, and labor demand over the 2000-2010 period under four scenarios of productivity growth: 1.5% annually, which was the average rate of increase over the past three decades; 1.75% and 2.0% annually, which mark the range of increases in labor productivity in the past decade; and 2.23% annually, which is a rate last surpassed in the 1950s and 1960s but not again attained for any long period thereafter. They estimated that the United States could be faced with a shortfall of labor unless output per hour worked grows by 2.23% for a sustained period of time *or* patterns of labor force participation change — for example, if more members of the population join the labor force and current workers retire later.[43]

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[41] Little and Triest, *The Impact of Demographic Change on U.S. Labor Markets*.

[42] Jennifer Cheeseman Day and Kurt J. Bauman, "Have We Reached the Top? Educational Attainment Projections of the U.S. Population," *Census Bureau Working Paper Series*, no. 43, May 2000, p. 13.

[43] Steven A. Nyce and Sylvester J. Schieber, "The Decade of the Employee: The Workforce Environment in the Coming Decade," *Benefits Quarterly*, first quarter 2002.

The Supply of Labor Domestically and Internationally

The Baby-Boom Generation in "Retirement". Another assumption underlying the labor shortage scenario is that members of the baby-boom generation will sharply curtail their involvement in the labor force once in their 60s. Surveys of boomers suggest that many intend to work during the typical retirement ages, however.[44]

The labor force participation rate of older workers actually began increasing in about the mid-1980s, but rose to a much greater extent among 55- to 64-year-olds between 1995 and 2005 than in the prior 10-year period, climbing 5.7 percentage points, from 57.2% to 62.9%. The comparably large increase in workforce participation among 65- to 74-year-olds meant that, in 2005, more than one in five persons in the group (22.9%) were labor force members. It is anticipated that these trends will continue going forward: in 2014, when baby-boomers will be between 50 and 68 years old, the BLS projects that the labor force participation rate of 55- to 64-year-olds could reach 65.2%, while that of 65- to 74-year-olds could surpass one in four (26.9%). In light of the large size of the baby-boom population, even a small increase in the percentage continuing to work at older ages would greatly affect the supply of labor.

Many variables have come together to spur the ongoing increase in labor force participation among older workers. Improvement in the population's health has increased the ability of individuals to work at older ages, should they desire. The decrease in physically demanding jobs operates in the same direction.[45] The life span of individuals has lengthened as well, which could make the extension of one's years in the labor force a financial necessity — particularly for those with limited savings and retirement benefits. The tendency of employers to eliminate health benefits coverage for retirees also could be prompting older workers to remain in the labor force, at least until they qualify for Medicare.[46] So, too, could the movement of employers away from traditional (defined-benefit) pensions to defined-contribution retirement plans. The latter, which employers began to offer in the 1980s after section 401(k) was inserted in the Internal Revenue Code (IRC), are age-neutral and do not pay out a guaranteed level of benefits.

In addition to changes in the IRC, Congress has enacted and amended other laws over the years that encourage older workers to remain engaged in the labor force and remove obstacles to their continued participation. Several such changes were made to the public pension system, including gradually raising from 65 the age at which workers can receive full retirement benefits, increasing the reduction in benefits for those who retire between 62 and the full retirement age, and enhancing the delayed retirement credit for those who forgo benefits receipt until after they have

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[44] For summaries of findings from various surveys, see Sara E. Rix, *Aging and Work — A View from the United States*, Washington, DC: AARP, February 2004.

[45] Richard W. Johnson, "Trends in Job Demands Among Older Workers, 1992-2002," *Monthly Labor Review*, July 2004.

[46] The Urban Institute, *Work and Retirement: Facts and Figures*, August 2006.

attained full retirement age.[47] Most recently, Congress loosened the earnings test for employed beneficiaries between 62 and the full retirement age and eliminated it for those at or above the full retirement age.[48] If policymakers become convinced that a labor shortage is imminent, they might consider additional modifications of the public pension system, such as further relaxing or eliminating the earnings test for workers between 62 years old and the full retirement age. The results of empirical research are mixed, however, on whether removal of the earnings test for employed beneficiaries at or above the full retirement age has increased the labor supply.[49]

Some regard federal policies that ban age-based discrimination in the workplace and virtually eliminate mandatory retirement to be among the leading reasons for the increase in labor force participation among older members of the population.[50] When the Age Discrimination in Employment Act of 1967 (ADEA) was passed, it barred employers from discriminating against people between 40 and 65 years old on the basis of age. Thus, firms still were permitted to include involuntary retirement clauses in their pension plans as long as they were not applied to persons under age 65. In 1978, the ADEA was amended to protect individuals up to 70 years old from workplace discrimination; the age restriction was removed by amendment of the ADEA in 1986. As a result, most private pension plans no longer can include involuntary retirement provisions.[51]

Nonetheless, it appears that older workers who lose long-held jobs have limited reemployment opportunities due, perhaps, to age-based hiring discrimination and lawful considerations of employers.[52] Individuals who willingly retire from their career jobs but who would like to continue working for another company on a part-time basis, for example, could face similar employer reluctance to hire them.

Legal statutes, such as the Employee Retirement Income Security Act (ERISA), were cited as an obstacle by almost 12% of companies that consider their aging workforces an issue that needs to be dealt with.[53] Provisions in ERISA and the IRC arguably dampen employer demand for older workers who would prefer to phase into

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[47] For additional information, see CRS Report RL30629, *Older Workers: Employment and Retirement Trends*, by Patrick Purcell. (Hereafter referred to as CRS Report RL30629, *Older Workers*.)

[48] The earnings test limits the amount that can be earned without reduction of Social Security retirement benefits, thus potentially curbing a person's hours of work or participation in the labor force.

[49] For additional information, see CRS Report RL32757, *Issues in Aging: Unemployment and Older Workers*, by Julie M. Whittaker.

[50] Toossi, *Labor Force Projections to 2014*.

[51] William J. Wiatrowski, "Changing Retirement Age: Ups and Downs," *Monthly Labor Review*, April 2001.

[52] For additional information, see CRS Report RL33054, *Older Displaced Workers in the Context of an Aging and Slowly Growing Population*, by Linda Levine.

[53] Ernst & Young LLP Human Capital Practice, *The Aging of the U.S. Workforce: Employer Challenges and Responses*, January 2006. (Hereafter referred to as Ernst & Young, *The Aging of the U.S. Workforce*.)

retirement rather than fully withdraw from the labor force. Currently, a company can only retain older employees and distribute pension benefits to them if they have reached the plan's normal retirement age which, by law, cannot be above age 65. An employer can make pension distributions to employees who have reached the plan's early retirement age (e.g., age 62) only after they leave the firm. Thus, a business cannot compensate employees between 62 and 65 years old who would like to continue at the firm, but work fewer hours or weeks, through a combination of reduced wages and partial pension distributions. Companies have asserted that amending the law to permit in-service pension payments would make them more willing to provide phased-retirement arrangements. However, the net impact of allowing in-service distributions at the early retirement age on labor force participation and hours worked among older employees is unknown.[54]

Another reason suggested for employers being reticent about hiring older workers is that the group is thought to be comparatively expensive to cover under health insurance plans.[55] Companies that provide health benefits must offer all employees, including those at least 65 years old who are eligible for Medicare, the same plan. If newly hired older workers accept employer-sponsored health benefits, Congress requires that Medicare be the secondary payer. Firms with health benefit packages might be more inclined to hire Medicare-eligible job applicants were their own plans instead designated the secondary payer. While this policy change might raise employer demand for older workers seeking new career jobs or bridge-to-retirement jobs, it also would increase the costs of the Medicare program.[56]

However, the majority of U.S. companies do not appear to have yet focused on the implications of an aging labor force. Human resources (hr) practitioners who are cognizant of the importance of recruiting and retaining baby-boom employees have urged companies to reexamine and change their attitudes toward older workers as they did, with a lag, when women began entering the labor force in large numbers during the 1970s.[57] According to a survey of hr staff, some 40% reported that their organizations were just becoming aware of the possibility of a worker shortage associated with retirement of baby-boom employees and a similar share indicated that they were just at the start of reviewing their policies and practices accordingly. As of 2005, only 11% had made changes to prepare for a potential labor shortage.[58] It

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[54] Although an employer is permitted legally to rehire its own early retirees on a part-time or temporary basis, or as contractors, this approach is risky for both parties because neither is obligated to resume the employment relationship. See CRS Report RL30629, *Older Workers*, which also addresses in-service distributions from defined-contribution retirement plans.

[55] Rudolph G. Penner, *Incentives for Older Workers to Remain in the Workforce*, posted December 12, 2005 at [http://www.urban.org/url.cfm?ID=900904].

[56] For more information, see CRS Report RL33587, *Medicare Secondary Payer — Coordination of Benefits*, by Hinda Chaikind.

[57] Diane Piktialis and Hal Morgan, "The Aging of the U.S. Workforce and Implications for Employers," *Compensation and Benefits Review*, January/February 2003, vol. 35, no. 1.

[58] Jessica Collison, *2005 Future of the U.S. Labor Pool*, Alexandria, VA: Society for (continued...)

thus appears that corporations have been directing their attention to matters they consider more pressing at the moment. A survey conducted in late 2005 suggests that the situation may change between now and 2010: nearly one-half of survey respondents reported that the aging of the workforce would be important or very important to the goals and strategies of their organizations over the next five years.[59] In the meantime, however, survey results released in March 2007 indicate that only 25.8% of employers had analyzed the age makeup of their workforces and only 33.8% had projected retirement rates of their employees. Accordingly, 34.9% of employers had not developed "strategies to encourage late-career employees to work past the normal retirement age."[60]

The Echo-Boom Generation as Workers. Proponents of the labor shortage viewpoint usually look just at the very different size of two groups, namely, the baby-boom and baby-bust generations. The much smaller cohort that immediately followed the baby-boomers into the workforce is not the only source of replacements for retirees, however.

The baby-boom produced numerous offspring, who have been labeled the echo-boom generation. Variously defined as having been born starting during the mid-to-late 1970s, and ending sometime during the mid-to-late 1990s, the echo-boom — at about 72 million — approaches the size of its parents' generation.[61] The oldest members of the echo-boom joined the labor force during the 1990s, and were responsible for the turnaround in the size of the youth labor force over the 1995-2005 period shown in **Table 1**. Members of the echo-boom started to turn 25 years old and enter the prime work-age group (25-54) — with its high rates of labor force participation — during the early years of the current decade, just when their parents began to leave the group.

Rather than an actual shortage of labor, some observers thus have suggested that the labor market may develop "an experience problem."[62] Employers might indeed demand that individuals have many years of work experience to fill certain positions (e.g., managers), but they may not feel the same way about other jobs. Companies might, for example, prefer to hire recent college graduates for occupations that have been changed substantially by technology (e.g., skilled blue-collar jobs in manufacturing) rather than upgrading the skills of experienced middle-aged workers who have, at most, a high school diploma.

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[58] (...continued)
Human Resource Management, June 2005.

[59] Ernst & Young, *The Aging of the U.S. Workforce*.

[60] The Center on Aging & Work at Boston College, *The National Study Report: Phase II of the National Study of Business Strategy and Workforce Development*, Research Highlight 04, March 2007, p. 17.

[61] Hartig, *Generation Gaps*.

[62] Ronald A. Wirtz, "Help Wanted, Again," Federal Reserve Bank of Minneapolis *fedgazette*, January 2005, available at [http://minneapolisfed.org/pubs/fedgaz/05-01/cover.cfm].

Immigration and Offshoring. Even if U.S. demographics were such a strong determinant of the supply of labor,

> the US is not a closed economy dependent only on domestic labor to produce goods and services. In the global economy, demographic and labor conditions in other countries affect the US labor market. Globalization gives US firms access to labor overseas through foreign direct investment, offshoring, or subcontracting and access to foreign-born labor that immigrates to the US. The claims of a coming labor shortage must be assessed in a global context.[63]

If globalization were to continue at its current pace, one prominent labor economist expects

> US firms to be able to meet potential shortfalls in domestic labor supplies for tradable goods and services by hiring labor overseas, and to seek immigrant labor to ameliorate potential labor shortages in the production of non-traded goods or services.[64]

The limited availability of U.S. computer programmers to make the technological fixes necessary for a smooth transition into the 21st century (i.e., the Y2K crisis) and the ready supply of qualified foreign workers sparked firms to obtain H-1B nonimmigrant professional specialty visas,[65] which allowed them to temporarily bring these individuals into the country.[66] The perceived scarcity of information technology workers (e.g., computer systems analysts and engineers) in the domestic labor force prompted the 105th and 106th Congresses to raise the H-1B visa cap from FY1999 to FY2003, and the 106th and 108th Congresses to create permanent exemptions from the visa limit. In addition, the 107th Congress passed legislation to allow H-1B nonimmigrants to remain beyond the statutory limit on their time in the country if their employers petition for them to become legal permanent residents (LPRs) of the United States.[67] Employers continue to urge

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[63] Richard B. Freeman, "Labor Market Imbalances: Shortages, or Surpluses, or Fish Stories?" *Global Imbalances — As Giants Evolve*, Boston Federal Reserve Economic Conference, Chatham, MA, June 14-16, 2006, p. 7-8.

[64] Richard B. Freeman, "Is A Great Labor Shortage Coming? Replacement Demand in the Global Economy," *National Bureau of Economic Research Working Paper Series*, Working Paper 12541, September 2006, p. 8.

[65] A professional specialty occupation requires the application of highly specialized knowledge, the attainment of at least a bachelor's degree (or its equivalent), and the possession of a license or other credential to practice the occupation if required. Besides computer-related occupations, employers recently have obtained relatively large numbers of H-1B visas for architects and engineers, administrative specializations, and educators.

[66] For additional information, see CRS Report RL31973, *Programs Funded by the H-1B Visa Education and Training Fee, and Labor Market Conditions for Information Technology (IT) Workers*, by Linda Levine.

[67] For additional information, see CRS Report RL30493, *Immigration: Legislative Issues on Nonimmigrant Professional Specialty Workers*, by Ruth Ellen Wasem. (Hereafter referred to as CRS Report RL30493, *Immigration: Legislative Issues on Nonimmigrant Professional Specialty Workers*).

Congress to reexamine the H-1B visa program to enable them to bring into the country greater numbers of skilled guest workers.[68]

Businesses similarly have turned to temporary and immigrant labor to fill jobs in other occupations when U.S. workers are deemed to be in short supply (e.g., landscape laborers and nurses). In view of the ongoing tightening of the U.S. labor market, firms will likely intensify their pressure on Congress to allow them even greater access to this pool of less skilled labor. Some Members have expressed support for proposals that would raise ceilings on current visa categories for guest workers and would expand existing or establish new exemptions from nonimmigrant visa caps.[69] Yet the labor market effects of immigration and the ability to link, in a timely manner, migrant inflows with U.S. labor market conditions remain unsettled issues.[70]

Another means of augmenting the domestic labor supply available to U.S. businesses is offshoring or offshore outsourcing. Initially, the principal U.S. firms sending work to be performed in other countries were manufacturers, which meant that most of the jobs first offshored involved blue-collar occupations such as the industry's baby-boom dependent production jobs shown in **Table 2**. More recently, the widespread availability of technologies that permit low-cost, good-quality, high-speed transmission of voice and data communications has enabled companies in the service sector to tap into the supply of white-collar workers residing in other nations. Although good data on the extent and nature of offshoring are limited, estimates suggest that some of the baby-boom dependent occupations shown in **Table 2** have characteristics that make their duties amenable to export (e.g., office and administrative support, and business and financial operations).[71]

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[68] See, for example, "Gates Urges Change in H-1B Visa Program as Step to Preserve U.S. Competitiveness," *Daily Labor Report*, March 8, 2007.

[69] For additional information, see CRS Report RL32044, *Immigration: Policy Considerations Related to Guest Worker Programs*, by Andorra Bruno; and CRS Report RL30493, *Immigration: Legislative Issues on Nonimmigrant Professional Specialty Workers*.

[70] For additional information, see CRS Report 95-408, *Immigration: the Effects on Low-Skilled and High-Skilled Native-Born Workers*, by Linda Levine; and Cappelli, *Will There Really Be a Labor Shortage?*

[71] For additional information see CRS Report RL32292, *Offshoring (a.k.a. Offshore Outsourcing) and Job Insecurity Among U.S. Workers*, by Linda Levine.

The core activities of several baby-boom dependent industries could make it difficult for them to utilize labor living outside U.S. borders (e.g., truck drivers in the transportation industry, sales agents in the real estate industry, elementary and secondary school teachers in educational services, and nurses in hospitals). Public sentiment also has prompted policymakers to try to limit offshoring of activities traditionally performed by employees of baby-boom dependent industries (e.g., public administration).[72]

[72] "Bidders on Pennsylvania Service Contracts To Get Extra Points for Using U.S. Workers," *Daily Labor Report*, September 18, 2006; "Poll Shows Americans Believe Government Should Prevent Jobs From Being Outsourced," *Daily Labor Report*, September 8, 2006; "New Jersey Governor Inks Bill Barring Offshore Outsourcing of State Contracts," *Daily Labor Report*, May 12, 2005; and "Several Governors Issue Executive Orders to Limit Outsourcing of State Contracts," *Daily Labor Report*, April 27, 2004.