

U.S. Labor Input in Coming Years

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A major issue facing the U.S. economy in coming years, and facing those of us who have to try to understand the evolution of the economy, is the probable growth rate of labor input. The issue arises because the first wave of the baby-boom generation is now beginning to retire. If those reaching retirement age in the near future retire at the same rate as those reaching retirement age over the past ten years or so, then labor force growth will decline dramatically. In this case, the number of those retiring will almost match the number of young persons plus immigrants entering the labor force. In that case, the U.S. labor force will grow only very slowly. Conversely, with only a relatively small change in retirement patterns, labor force growth could be substantially higher than suggested by retirement patterns observed in the recent past. Estimates of labor force growth for coming years—even as soon as next year—by various experts differ by a factor of two. That is an enormous discrepancy.

Labor force growth matters for a number of reasons. The trend of total GDP growth is determined by the trend of hours worked and growth of output per hour, or productivity. The growth of government revenues, including revenues flowing into the Social Security and Medicare systems, depends centrally on the growth of total national output. In the context of short-run business cycle analysis, we in the Federal Reserve will have to reach judgments about whether observed employment growth is outrunning, or falling short, of labor force growth. I'll return to some of the implications of uncertainty over labor force growth in my concluding remarks.

Before proceeding, I want to emphasize that the views I express here are mine and do not necessarily reflect official positions of the Federal Reserve System. I thank my colleagues at the Federal Reserve Bank of St. Louis for their comments, especially Christopher Wheeler, senior economist in the Research Division, who provided special assistance. However, I retain full responsibility for errors.

THE FRAMEWORK

Economists analyze trends in total labor input by examining components of the total. We typically start with population growth. Then, we examine the fraction of the population at work or seeking work. The sum of those employed and those unemployed is the labor force. The participation rate is the fraction, usually expressed as a percentage, of the labor force in the population. The next step is to examine the split of the labor force between employment and unemployment. Finally, we need to examine the behavior of average hours of work of those employed. This analytical framework provides a way to study changes over time in the total hours of labor input in the economy.

Of these various analytical components, population growth and fluctuations in the labor force participation rate are quantitatively most important for understanding changes in total hours of labor input over a span of a few years or more. However, fluctuations in the unemployment rate are particularly important for understanding business cycle fluctuations lasting a few quarters or a year or two. We also know that when business

conditions turn soft, labor force participation declines. Some who lose their jobs drop out of the labor force rather than continue to look actively for work. In the reports compiled by the Bureau of Labor Statistics (BLS), active job search is required for a person not working to be classified as unemployed rather than not in the labor force.

Given the dramatic changes that are ahead of us as the baby-boom generation begins to retire, it makes sense to look closely at issues surrounding likely future labor force participation.

The total labor force participation rate is measured each month by the BLS as the fraction of the civilian, non-institutional population aged 16 years or older who are either working or actively seeking work. The participation rate provides a sense of how engaged in work the U.S. population is. High levels indicate that a large fraction of the adult population is either situated in a job or is looking for one. We can interpret a high rate of participation, therefore, as an indication that the potential supply of labor is large relative to the size of the working-age population.

Labor force participation in the United States has shown two striking trends over the past 50 years: a long-run increase in the decades following World War II and a significant decline over the past six years. It is this latter trend, the decline, that has attracted so much attention among economists recently, in part because it represents a significant break with the past and in part because there are potentially significant long-run consequences associated with it. With a decreasing fraction of the adult population engaged in work, our economy will have fewer individuals producing income and output relative to the total number of residents in the country. In this case, the output of each worker will have to sustain the consumption of a larger number of individuals. Improving on, or even simply maintaining, our per capita standard of living, therefore, will become a more difficult goal to achieve in the face of declining labor force participation.

TRENDS IN LABOR FORCE PARTICIPATION

To begin the analysis, consider how participation rates have evolved in the United States over the past half century. The BLS has compiled monthly statistics on labor force participation dating back to 1948. These figures are based on a survey that at present covers approximately 60,000 households.

What is by far the most noticeable trend in these statistics is the overall increase in the participation rate since 1948. In January of 1948, the overall rate of labor force participation in the United States was roughly 59 percent. This figure held steady until the early 1960s, when it began to rise, reaching 61 percent in 1975, 65 percent in 1985, and just over 66 percent in 1995. During the first quarter of 2000, the labor force participation rate reached its highest level in the history of the series, hitting 67.3 percent of the working-age population.

Over the past six years, however, there has been a notable decrease. Labor force participation dropped from 67.3 percent in early 2000 to 65.8 percent in the first quarter of 2005. It has since risen to just over 66 percent. The most recent figure available at the time of this writing—that for October of 2006—was 66.2 percent. In absolute terms, this 1 percentage point drop in the participation rate since 2000 corresponds to a decrease in the size of the labor force of more than 2 million individuals relative to what it otherwise would have been.

SOME EXPLANATIONS

How do we explain these trends, both the increase between 1965 and 2000, and the decrease thereafter? Most of the increase in labor force participation after 1960 can be attributed to the growing presence of women in the labor market. In 1950, roughly one in three women 16 years of age or older participated in the labor force. By 1998, nearly 60 percent did. Although this increase occurred in most age groups, it was par-

ticularly pronounced among women between the ages of 25 and 54; that is, women in the so-called “prime” working years. Among these women, the rate of participation rose from less than 40 percent in 1950 to more than 75 percent by the end of the 1990s.¹

As many economists have observed, this increase in women’s participation has been the product of several elements. The improvement in household technologies simplified many daily tasks, such as cooking and cleaning, thereby giving those responsible for carrying them out greater time to pursue other activities, including work outside of the home (Hotchkiss, 2005). Medical advances provided women with greater control over their child-bearing decisions, allowing them to focus to a greater extent on education and the pursuit of a career (Goldin, 2004). Evolving social norms also made it more acceptable for women to delay marriage and concentrate on both schooling and work, to work while married and to work while raising small children (Aaronson et al., 2006). Such changes also opened doors to careers in fields such as business, law and medicine, as well as increased levels of compensation, both in absolute terms and relative to the earnings of men (Goldin, 2004).

The participation of men in the labor force, in contrast, has shown a gradual decrease in the last half century, dropping from more than 85 percent in 1948 to less than 75 percent today. As with the rise in female participation rates, there are likely many reasons for the decline in men’s labor force participation. The creation of the Social Security System in 1935, the rise in the provision of private pensions following the Revenue Act of 1942 and greater generosity in disability insurance, for example, may have encouraged men to retire earlier (Hotchkiss, 2005). The drop in men’s participation may also be tied to the rise in women’s participation if married couples view men’s and women’s labor market activity as substitutes. A cynic might say that women increased their labor force participation so men can retire early.

Of course, the fact that the overall rate of participation increased during the latter half of the 20th century indicates that the rise in women’s participation greatly outweighed the decline among men. When viewed from this perspective, the rise in female labor force participation was a crucial aspect of the rise in overall labor input and, thus, the rapid expansion of the U.S. economy during the latter half of the 20th century.

The second and more distressing trend in the participation rate is the significant decline since the first quarter of 2000. Recall that in the past six years, the participation rate has dropped by roughly one percentage point, implying a decrease in the size of the labor force of approximately 2 million workers. To be sure, some of this turnaround can be linked to the recession of 2001. Economists have long observed that labor force participation tends to be procyclical: it decreases when the economy weakens and increases when it strengthens.

However, the persistent decrease in the participation rate during the economic recovery since 2001 has led many economists to believe that there are longer-run, structural changes at play. The most salient of these changes is the aging of the U.S. labor force associated with the baby-boom generation. This group, born between 1946 and 1964, has been estimated to comprise roughly 78 million individuals and, consequently, represents more than a third of the adult non-institutional population. In 2000, boomers were between the ages of 36 and 54—an age range with a particularly high rate of labor force participation. In 2000, approximately 92 percent of men and 77 percent of women in this age category participated in the labor market (Toossi, 2005). In addition to the expanding U.S. economy during the 1990s, this demographic feature of the labor force likely contributed to the peaking of the participation rate at this time.

However, after 2000 the baby-boom generation began to move into age categories with substantially lower rates of labor force participation. Recent participation rates among men 55 to 59

¹ These figures are derived from the Bureau of Labor Statistics: <http://www.bls.gov/opub/ted/2000/feb/wk3/art03.htm>.

years of age, a group into which the boomers became increasingly represented between 2001 and 2006, averaged 77 percent while the participation rate for women was 66 percent (Aaronson et al., 2006). As individuals age beyond 60, participation rates typically fall even further.

The aging of the baby-boom generation, however, only represents one part of the recent decline in labor force participation. A sizable part of the decline can be attributed to changes in the behavior of workers at the opposite end of the age distribution: teens. Between 2000 and 2003, labor force participation among workers between the ages of 16 and 19 dropped by 7.5 percentage points. Since that time, there has been no tendency for teen participation to rebound, and current rates are hovering around 44 percent (Aaronson, Park and Sullivan, 2006).

Economists looking into this trend have identified a number of possible explanations, and most begin, once again, with the 2001 recession. Because teen workers have a somewhat tenuous connection to the labor market, they are particularly sensitive to economic downturns. It is, therefore, not surprising that their participation rates dropped off significantly as the U.S. economy entered recession in 2001.

The fact that the number of teens in the labor force has not rebounded in spite of the recovery over the past 5 years, however, suggests that there are longer-run, structural factors beneath this decline. The downward trend in teen participation since the late 1970s further supports this notion. As it turns out, there appears to be one particularly important reason for this change: education.

In 1987, the percentage of individuals between 16 and 19 years of age who were enrolled in school was roughly 61 percent but rose to 73 percent in 2005. This is a very substantial increase and by comparing 2005 with 1987, years with similar overall labor market conditions, the increase is not distorted by different cyclical conditions in the labor market. In part, the surge in school enrollment can be linked to the increase in the economic return to schooling since the late 1970s, particularly the payoff associated with

a college degree. Yet, it may also derive from the expansion of educational opportunities, particularly at the post-secondary level (Aaronson, Park and Sullivan, 2006) as well as the evolution of social norms that place a greater emphasis on schooling than in years past.

THE FUTURE OF LABOR FORCE PARTICIPATION

What do these trends in labor force participation imply about the future of U.S. labor supply and about the prospects for continued growth in our collective standard of living?

The aging of the population, of course, should continue to decrease aggregate labor force participation, and therefore, the potential supply of labor in the United States. As I mentioned before, the baby-boom cohort began to enter the 55-and-older age category back in 2001, indicating that the fraction of workers beyond their prime working years will steadily rise in the years ahead. A BLS study projects that over the next eight years the fraction of individuals over the age of 55 will rise to more than one third of the adult population from a level of 29 percent today (Toossi, 2005). The Census Bureau projects this figure to rise to more than 38 percent by 2030. On the other hand, the fraction of the population in prime working years—that is, between 25 and 54—is projected to decrease from approximately 53 percent today to 51 percent by 2014 and 45 percent by 2030.

Given the lower participation rates among older workers, these trends suggest that the fraction of the U.S. population either working or looking for a job will decrease in the coming decades. In 2005, the participation rate among men aged 55 to 59 was more than 77 percent. Among men 10 years older, 65 to 69, the rate was less than half this figure: 33.5 percent. For men 70 and older, the participation rate was only 13.5 percent (Aaronson et al., 2006). Assuming that this general pattern of participation continues to hold, the aging of the U.S. population will necessarily produce further declines in potential labor supply.

Of course, participation rates need not remain at current levels. In fact, there are a number of reasons to expect participation rates among older workers to rise somewhat in the coming years. First, the age at which workers may draw full benefits from Social Security is, under current law, increasing. The full retirement age is 65 for individuals born in 1937 or earlier, 66 for those born between 1943 and 1954, and 67 for individuals born in 1960 or later. Furthermore, workers who choose to delay retirement until age 70 are eligible for higher benefits. Social Security benefits used to be reduced when a person receiving benefits also had earned income, but that tax-like provision has been eliminated. These provisions in the law, taken together, may encourage some workers to retire later than has been true of those reaching retirement age in the recent past. However, it remains to be seen how large the effect might be.

Second, the rate at which Social Security benefits are growing has slowed, particularly when compared with the decades prior to the mid-1980s. According to data from the Social Security Administration, real average monthly benefits rose by 88 percent between 1965 and 1985. Between 1985 and 2004, they increased by 23 percent.² Social Security benefits today represent a substantial fraction of the average household's retirement income—indeed, Social Security benefits represent more than half of total income for 65 percent of the beneficiaries (Social Security Bulletin: Annual Statistical Supplement, 2005). Given this fact, the decreased rate of growth in benefits over time may lead some retirees to supplement their Social Security benefits. Taking a job, of course, is one possible option. Reaching retirement age may not necessarily mean retirement. Some may seek another career, or partial retirement.

A third development that could increase the labor force participation rate among older workers is increased life expectancy. Since 1970, life

expectancy for 65-year-olds in the United States has risen by nearly four years for men and three years for women.³ With greater numbers of productive years, individuals may decide to lengthen their careers.

Fourth, older workers may choose to remain employed longer to maintain health insurance coverage. Surveys by the Kaiser Family Foundation and the Health Research and Educational Trust have suggested that the fraction of firms offering retiree health insurance to their workers decreased by one half between 1988 and 2005 (Aaronson et al., 2006). Because workers, in general, do not qualify for Medicare until age 65, this development may also encourage workers to delay retirement until age 65.

Indeed, we may have already seen some of the effects of these changes. Among all age groups, only that for workers 55 years of age or older has shown a significant increase in participation since 2000.

Nevertheless, it is almost certain that we will see a decrease in the growth of total labor supply over the next several decades. Even though we might reasonably project increases in participation among older Americans, rates of participation among those 55 years of age and older will still be substantially lower than among individuals of prime working age. Hence, as our population grows older, overall participation will decline. On this point, researchers tend to agree. Although the exact projections of organizations such as the Congressional Budget Office, the Bureau of Labor Statistics and the Social Security Administration differ, all expect a decline in the participation rate in the years ahead.

Of course, a decline in the rate of participation does not necessarily imply that either the level of, or rate of change in, labor supply itself will decrease, because the U.S. population continues to grow. Smaller fractions of a larger total population may still translate into greater absolute numbers of people working over time. Unfortu-

² These are derived from the Social Security Bulletin: *Annual Statistical Supplement*, 2005.

³ These statistics are derived from the National Center for Health Statistics at <http://www.cdc.gov/nchs/fastats/lifexpec.htm>.

nately, two additional trends are working against this possibility. First, while the U.S. population is growing, its rate of growth is likely to slow in the future. Second, for many decades, there has been a secular decrease in the average weekly hours worked by employees in the non-farm U.S. business sector, and this decrease is unlikely to turn around in coming years (Aaronson et al., 2006).

IMPLICATIONS FOR THE U.S. ECONOMY'S FUTURE

If these projections hold true, the U.S. economy will face some daunting challenges in the coming decades. In particular, because labor represents the largest single input in U.S. production, GDP—which measures the total value of the goods and services our economy generates—may begin to exhibit slower rates of growth over time. Because income for the country as a whole depends on production, slower growth in GDP and income implies slower growth in consumption of U.S. households. Thus, a decrease in labor supply growth will lead to slower growth in our well-being.

In addition, as noted recently by Fed Chairman Ben Bernanke, a decrease in the fraction of the U.S. population at work will present a number of fiscal challenges for our government.⁴ Most obviously, as the rate of labor income growth slows, the growth of tax revenue will also begin to diminish, threatening the viability of programs such as Social Security and Medicare, which have outlays that are expected to double as a fraction of GDP by 2050, as well as our ability to increase discretionary spending, including military expenditures.

How might we respond to these challenges? The current path of spending and taxation, certainly, can be altered, and suggestions of this type have been offered by many influential writers and speakers. We should be open to multiple

avenues to address the challenges ahead. We should not rule out additional steps to encourage those who might otherwise retire to remain in the labor force longer. And we need to examine ways to increase productivity—to obtain more output per hour of labor input.

Our nation's capital stock—our office buildings, factories and equipment—is like labor, a fundamental input into the production of goods and services. Increasing our capital stock, therefore, provides a means to boost production in the face of declining labor input. Because investment in capital depends directly on how much our economy, including our federal government, saves, it is in our interest to place greater emphasis on policies that encourage higher rates of saving.

We can increase the productivity of working individuals by increasing levels of education among our population. Policies aimed at improving the effectiveness of primary and secondary education, curtailing the rate at which students drop out of school and increasing access to post-secondary education, for example, would be instrumental in making our labor force more productive.

Productivity also depends on developing more efficient production methods; that is, on the creation of new ideas and discoveries through research. A recent study of long-run trends in economic growth suggests that roughly half of the U.S. economy's growth during the second half of the 20th century can be linked to rising research activity (Jones, 2002). Continued devotion of resources to scientific research, therefore, would help to ensure that our economy continues to expand. Translating research into actual production requires that we enhance, where possible, entrepreneurial activity by maintaining adequate rewards and reducing burdensome regulation that yields more costs than benefits.

Economists, of course, have long stressed that productivity growth is the key to rising living standards, and perhaps accordingly, have offered suggestions similar to those I have just outlined.

⁴ These remarks, entitled "The Coming Demographic Transition: Will We Treat Future Generations Fairly?" were given at the Washington Economic Club on October 4, 2006.

I would like to stress, however, that the stakes of not pursuing these types of strategies are likely to rise in the years ahead. In the face of an impending slowdown in the growth of our economy's labor force, productivity growth has become more crucial than ever.

CONCLUDING REMARKS

Although the direction of effects from the aging baby-boom generation on labor force growth is clear, the magnitude is not. A paper published earlier this year in the *Brookings Papers on Economic Activity* (Aaronson et al., 2006) contains a summary table reporting four different projections of labor force growth out to 2014 based on the authors' model and estimates from the Congressional Budget Office, the Bureau of Labor Statistics and the Social Security Administration. For 2007, the projections range from a low of 0.6 percent growth to a high of 1.1 percent growth. For 2014, the projections range from a low of 0.2 percent to a high of 0.8 percent.

The magnitude of these differences is stunning. Based on these projections, if the unemployment rate remains about steady next year we can expect average monthly growth of employment ranging from a low of about 70,000 to a high of about 120,000. These are rough, rounded off estimates—to provide the estimates any other way would imply a false sense of precision. On the same basis, in 2014, the range is from about 30,000 to about 100,000 new jobs each month. These are very large differences. Moreover, given that each of the models used to produce these estimates is subject to error, in fact the range of uncertainty is even greater than the numbers just quoted.

It is important to digest not only the large differences in these estimates but also the large change now taking place in the labor market. From 1996 through 1999, we became accustomed to job growth in the neighborhood of 250,000 per month. In 2004-05, job growth averaged about 170,000 per month. With the baby-boom genera-

tion starting to retire, we'll have to change our view of normal job creation. Not to do so will invite a serious misperception of the state of the labor market.

Uncertainty over trend labor force growth will complicate the Fed's job next year. While we know that there is no long-run tradeoff between inflation and unemployment, policymakers try to maintain an equilibrium in the labor market at approximately full employment both because full employment is an important goal and because avoiding short-run strains in the labor market helps to maintain price stability. If actual employment growth slows, we will have to make the judgment as to whether the slowing is consistent with a slowing of trend labor force growth or is a sign of impending recession. If employment growth next year remains only modestly below this year's average pace of about 150,000 per month, we will have to make the judgment as to whether this growth is outrunning available labor, which would be the case if we accept the low estimate of trend labor force growth, or whether one of the higher estimates of trend labor force growth is being realized. To make this judgment, we will have to collate as many different scraps of information we can find to supplement the standard labor force statistics released every month.

For many years now economists have been discussing the long-run implications of retirement of the baby-boom generation. And I suspect that those debates will intensify now that the retirement wave is beginning. What we did not expect is that there would be so much uncertainty about the size of the wave when it started. The life of the monetary policymaker is always interesting, that is for sure!

REFERENCES

- Aaronson, Daniel; Park, Kyung-Hong and Sullivan, Daniel. "The Decline in Teen Labor Force Participation." Federal Reserve Bank of Chicago *Economic Perspectives*, 2006, pp. 2-18.

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Aaronson, Stephanie; Fallick, Bruce; Figura, Andrew; Pingle, Jonathan and Wascher, William. "The Recent Decline in the Labor Force Participation Rate and Its Implications for Potential Labor Supply." *Brookings Papers on Economic Activity*, 2006, 1, pp. 69-154.

Goldin, Claudia. "From the Valley to the Summit: The Quiet Revolution that Transformed Women's Work." NBER Working Paper 10335, 2004.

Hotchkiss, Julie. "What's Up with the Decline in Female Labor Force Participation?" Working Paper 2005-18, Federal Reserve Bank of Atlanta, 2005.

Jones, Charles I. "Sources of U.S. Economic Growth in a World of Ideas." *American Economic Review*, 2002, 92(1), pp. 220-39.

Munnell, Alicia and Sunden, Annika. "401(k) Plans are Still Coming Up Short." Boston College Center for Retirement Research Brief, March 2006, pp. 1-9.

Toossi, Mitra. "Labor Force Projections to 2014: Retiring Boomers." *Monthly Labor Review*, November 2005, pp. 25-44.