

# The Impact of Population Aging on

## Wisconsin's Labor Force

### INTRODUCTION

Wisconsin is on the cusp of an unprecedented period of workforce change. The situation is inevitable and the outcome poses enormous challenges for the state's economy. The shifting demographics and the effects on Wisconsin's workforce and economy cannot be overstated.

Wisconsin's demographics, like most other states' and developed nations', are changing. The size and rate of these changes will have significant ramifications for Wisconsin's workforce and general economy over the next ten to twenty years. Wisconsin's pending workforce challenges will consist of both quantity and quality issues. This paper discusses the quantity challenges, which, given the short timeframe of the onset of these changes, should be addressed sooner than later.

Wisconsin's labor force is foretold by population, demographics, and labor participation of the state's residents. The greatest impact on Wisconsin's labor force from 2010 through 2030 will be caused by the baby boomers – defined as those born between the years 1946 and 1964. The oldest baby boomer turned 62 years old in 2008 and became eligible for social security retirements benefits.

This paper describes population, demographics, and labor force projections in Wisconsin for a hundred-year timeframe 1930-2030. First, it gives a historical

perspective and reviews the factors contributing to population and workforce trends of the last generation. Second, it examines changes in the labor force based on gender and age characteristics of the labor force. Third, it focuses on the challenges and uncertainties surrounding labor force participation behavior. Finally, this paper discusses the pending unprecedented and largely unalterable changes in the above trends and the ramifications of those changes on Wisconsin's workforce and its economy.

### POPULATION TRENDS

We start with an examination of Wisconsin's population trends, as population is the ultimate contributor to and constraint on workforce quantity. Changes in Wisconsin's

Exhibit 1: Composition of Wisconsin's Population Growth

Period	Births	Deaths	Net In-Migration	Total Change
1950 - 1960	919,841	353,107	- 49,532	517,202
1960 - 1970	855,152	395,537	6,429	466,044
1970 - 1980	681,953	404,262	10,130	287,821
1980 - 1990	727,812	414,739	-126,946	186,127
1990 - 2000	689,186	445,252	228,012	471,946
2000 - 2010*	705,826	449,663	127,342	370,657
2010 - 2020*	765,060	516,190	181,570	430,440
2020 - 2030*	775,420	585,960	148,910	338,370

\* projection

sin's population are spurred by trends in fertility, mortality, and net in-migration.<sup>1</sup> The composition of Wisconsin's population growth is shown in Exhibit 1.

Historical events have shaped Wisconsin's population mix to date and will continue to affect the future composition of the state's population. During the 1930s and early

<sup>1</sup> We use the civilian non-institutional population data as the population baseline and the civilian non-institutional population over the age of 16 as the labor force baseline. The terms population and workforce or labor force are used interchangeably with the respective civilian non-institutional terms through the paper.

Produced by the Office of Economic Advisors, Wisconsin Department of Workforce Development.

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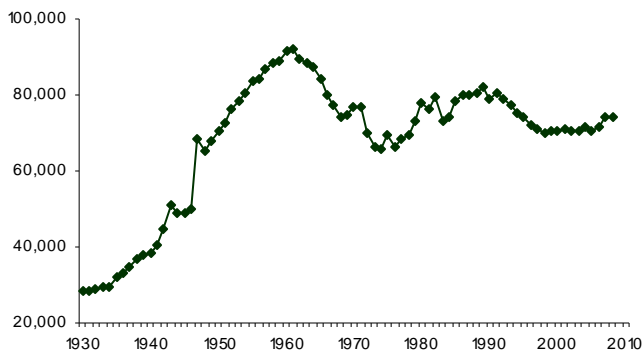


1940s, there was a decline in fertility rates in the U.S. and Wisconsin as the Great Depression and World War II disrupted normal family life. In the years following World War II, from 1946 to 1964, the United States and much of the western world experienced an explosive increase in birth rates and the number of births. Approximately 80 million babies were born in the U.S. during the 1946 to 1964 period.<sup>2</sup> Over 1.7 million babies were born in Wisconsin alone between 1946 and 1964, a 61 percent increase from the previous nineteen-year time span. People born during this period are referred to as Baby Boomers and reflect a generation of enormous societal and economic changes in the country and the state.

Wisconsin's population increased an average of 1.4 percent per year between 1940 and 1970, due to the increase in birth rates and in-migration. A significant decline in the number of births followed until the late 1970s, when the previous generation aged past the primary child-bearing years and before their offspring (the baby boomers) entered it. Birth rates halved from the peaks of 25 births per thousand persons in the 1950s to 12.5 births per thousand people during the 1970s. Wisconsin's population increased an average of 0.63 percent per year during the 1970s.

As the baby boomers entered the prime childbearing years, the state's population growth increased. Birth rates increased again, but not to pre-1970s levels, as the swell of boomers began having children, giving

Exhibit 2: Population by Year of Birth



rise to what is referred to as the Boomer Echo.

Wisconsin's population growth rate increased with the echo, rising by 0.93 percent per year from 1990 to 2000. The baby bust of the 1970s is reflected in the age cohorts by an 187,000 decrease in the number of persons in Wisconsin aged 16 to 24 during the 1980-1990 period and decline of 122,000 individuals age 25 to 34 in 1990-2000.

The rate of Wisconsin's population growth is expected to remain fairly steady from 2000 through

2020, at about 0.73 percent per year, to reflect the sum of the baby boomers, the echo generation and their offspring, and immigration. Wisconsin's population growth from 2020 to 2030 is projected to slow to about 0.53 percent per year, to 6,541,180.

## DEMOGRAPHIC TRENDS

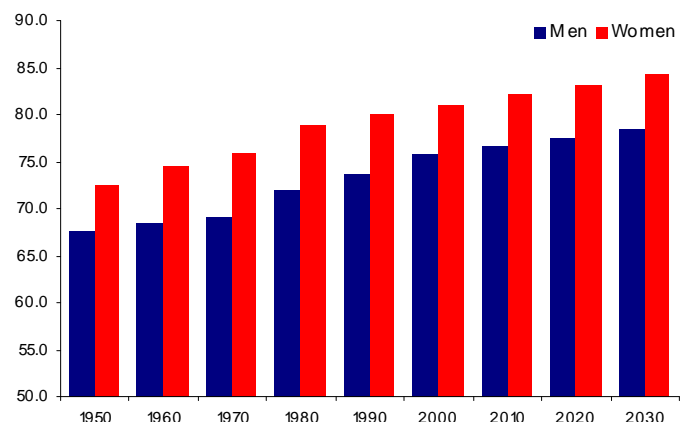
The baby boomers population bubble has had enormous effects on the global economy. The inordinate size of this twenty-year block of humanity has driven the majority of economic and policy trends in post-war America and most of the western world. The aging of this population block will continue to influence world events corresponding with its age-appropriate interests and clout.

### Mortality

Life expectancy has increased over the decades and is expected to continue to rise. In 2000, male life expectancy was 75.3 years of age, and is expected to increase to 78.5 in 2030. Female life expectancy is expected to rise from 80.7 years of age to 83.5 during the period. The general effect of mortality on the population can be seen by the age distributions of women and men. See Exhibit 3.

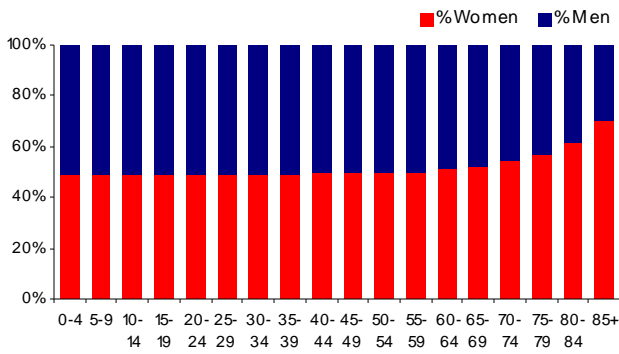
There are more men than women in all age groups up to age 55. After age 55, men's mortality rate is higher than women's. As a result, women outnumber men at older ages. This can be seen in the population shares by age cohort. Men and women aged 65 to 74 each accounted for about 8 percent of the population in 2007. Women over 74 years of age comprised 5.0 percent of the population and men made up 2.8 percent. This change is illustrated in Exhibit 4.

Exhibit 3: Historic Life Expectancy



<sup>2</sup> Population, demographic, and workforce data come from either the U.S. Bureau of the Census, the Wisconsin Department of Administration Demographic Services Center, or OEA calculations unless otherwise noted.

Exhibit 4: Share of Wisconsin Population by Age



**Average Age**

As the baby boomer population grew and the size of their cohort increased, the average population age declined. Likewise, as the boomers entered the labor force, the average age of the labor force declined, from 39.4 years in 1970 to 36.6 years in 1980. As the baby boomers age, the average age of the workforce will increase, from the 36.6 years in 1980 to 39.3 years in 2000, and 41.2 by 2020. See Exhibit 5.

Exhibit 5: Average Ages

	Average Ages						
	1970	1980	1990	2000	2010*	2020*	2030*
<b>Population</b>	31.7	33.8	35.5	36.4	38.1	39.6	41.0
<b>Labor Force</b>	39.1	36.6	37.4	39.3	40.4	41.2	41.3

\* projected

**Age**

Wisconsin’s baby-boomers aging can be traced through movements in particular age cohorts. For example, the 35-44 age cohort increased from 500,000 individuals to 720,000 between 1980 and 1990, a 45 percent increase and a growth rate 7.5 times the overall population increase. Carrying forward ten years, the 45-54 age cohort increased four times the overall population rate in the 1990-2000 time-frame.

Wisconsin’s total population is projected to grow by 22 percent over the 2000 to 2030 period. The growth in the older age groups will be much greater as the boomers age. Population changes will be mainly concentrated in the 55 and older cohorts, as shown in Exhibit 6. For the period 2000-2030, this age segment is projected to increase its share of the population from 21.6 percent in 2000 to 32.5 percent in 2030, growing almost 1.5 times the overall population growth rate.

This aging trend will continue over time as seniors (people 65 and older) increase their share of the population from 13 percent in 2000 to 21 percent in 2030. Wisconsin’s seniors numbered 700,000 in 2000, compared to a projected 1,402,000 in 2030, a 100 percent increase in the state’s senior population. The bulk of this growth will begin after 2011 as the baby boomers begin to turn age 65. The younger cohorts will continue to decline as a share of state population.

**Age Cohorts**

To track the baby boomers through the workforce and to determine Wisconsin’s future workforce size and constitution, age distribution of the total population and shifts in that distribution over time require more attention. Several key age components need to be examined in more detail. The primary age groupings considered are: less than 16 years of age, 16-24, 25-54, 55-64, 65 years of age and older. Each cohort impacts Wisconsin’s labor force in its own way. Those people under 16 years of age are the ones that will eventually enter the future labor force. The 16-24 year old cohort serves as a proxy for those who are just entering the labor force and/or still in school. The 25-54 group

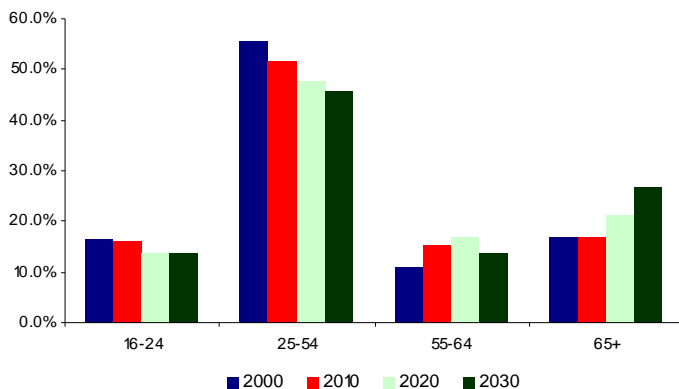
represents those in the prime years of their working life and provide the largest source of labor. The 55-64 age group is about to transition out of the workforce. Finally, the 65+ aged group serves as a proxy for those leaving or out of the workforce. This discussion is focused on the 55-64, and 65+ cohorts, as they consist mostly of baby boomers and will have the greatest impact on Wisconsin’s workforce over the next twenty years.

Wisconsin’s labor force aged population (those aged 16 years and older) in 2000 was 4.15 million. Those aged 55 years and older comprised 27.9 percent of the state’s 2000 population. By 2010, the labor force aged population will expand to include 4.6 million residents, but the proportion of population over 55 years of age will jump to 32.3 percent. The state’s population aged 55 years and over will add 326,339 residents, a 28.1 percent increase, to number 1,485,648 in 2010. Most of the increase in the number of older residents occurred among a smaller sub-set, those aged 55-64 years. This age group will add 246,150 residents, accounting for 75.4 percent of the increase in population 55 years and older from 2000 to 2010. Other population cohorts were also increasing in numbers, but none as significantly as the older groups as the baby boomer block ages.



The number of Wisconsin residents aged 55-64 years is projected to increase 58 percent over the thirty-year period from 2000 to 2030. The population over 65 years will double. This outcome will be little, if in any way, altered. The proverbial train carrying all those baby boomers, who will be 65 to 84 years old in 2030, has left the station. By 2030, the majority of baby boomers will no longer work.

Exhibit 6: Population Share by Age Cohort



This elderly shift in the state's population will make the share of those in the prime working years of 24-54, smaller compared to the state's expanding total population. Most of the workforce of 2030 is still in school or yet to be born. And the population projections show only relatively small increases in the number of those residents. The under 16 years of age cohort population was 1.29 million in 2000. By the time that cohort reaches its prime employment years come 2030, there will be 1.40 million of them, slightly less than the contingent in 2000. That primary labor supply cohort aged 24-54 years will constitute 45.8 percent of the labor force aged population in 2030; significantly less than the 55.7 percent they comprised in 2000.

Wisconsin's labor force aged population will increase by 1.10 million from 2000 to 2030, to 5.25 million. But the demographic age shift of the population will be dominated by the older population, the baby boomers, and their participation in the labor force will diminish with age. So while the workforce population will increase by over a million people, the active workforce itself will observe a much different track.

### LABOR FORCE TRENDS

Wisconsin is at the edge of an unprecedented period in population and workforce growth. The baby boomers have upset the normal correlation between population and labor force. In this next section, the

influences the baby boomers have had and will have on the labor force are discussed.

There are three primary factors affecting the size of the work force, 1) population size, 2) demographics, and 3) labor force participation. Population is the ultimate contributor to and constraint on the labor force and, usually, as goes the population so goes the work force. Demographics have become important in labor force projections, due to the vast baby boomer cohort progressing through the work-life cycle. Labor force participation rates, to be discussed below, vary by gender and age and thus are important as we track the baby boomer mass through the years.

### Past Labor Force Trends

Since the labor force is dependant on population, the relationship between population and the workforce requires closer scrutiny. For our purposes, the labor force draws from the population aged 16 years or older not residing in an institution. Residents in that population group who are working or looking for work are defined as the labor force.

As baby boomers came of working age, the workforce in Wisconsin swelled. The first baby boomers entered the labor force in 1962, but their real impact wasn't felt until the late 1980s. Wisconsin's labor force added 666,000 workers from 1980 to 1997. (For perspective, Wisconsin's entire manufacturing sector employed 600,000 in 2000.) The entrance of the baby boomers in the labor market is reflected in the age cohorts of the workforce. For example, the number of Wisconsin workers aged 25 to 34 increased by 105,000 from 1980 to 1990, and those in the 35 to 44 age cohort increased 217,000 during the period. Correspondingly over the following decade, the two age cohorts with the largest growth were the 35 to 44 and 45 to 54 age cohorts, adding 121,000 and 223,000, workers respectively.

### Labor Force Participation Rate – LFPR

First a definition is in order. The labor force participation rate or LFPR is the share or percentage of the non-institutionalized population 16 years of age and older who are working or actively seeking work. This measure is important because it provides an indication of the relative size of the labor supply based upon the population.

Among states, the highest labor participation rates can be found in the Midwest. The labor force participation rates in Wisconsin's primary age groups in this study (16-24, 25-54, 55-64, 65+) were generally



higher than national rates for the same groups.

Wisconsin's labor force participation rate peaked, at 74.2 percent in 1997, second highest in the nation. Both state and national LFPR declined over the next ten years. Wisconsin's rate fell 3.5 percentage points to 70.9 percent in 2007 (tenth highest in the nation), while the rate in the United States declined 1.1 percentage points to 66.0 percent.

A lower participation rate does not necessarily mean that there were fewer participants in the labor force. To the contrary, Wisconsin's labor force of 3,093,800 in 2007 was its largest on record.

### Gender and the LFPR

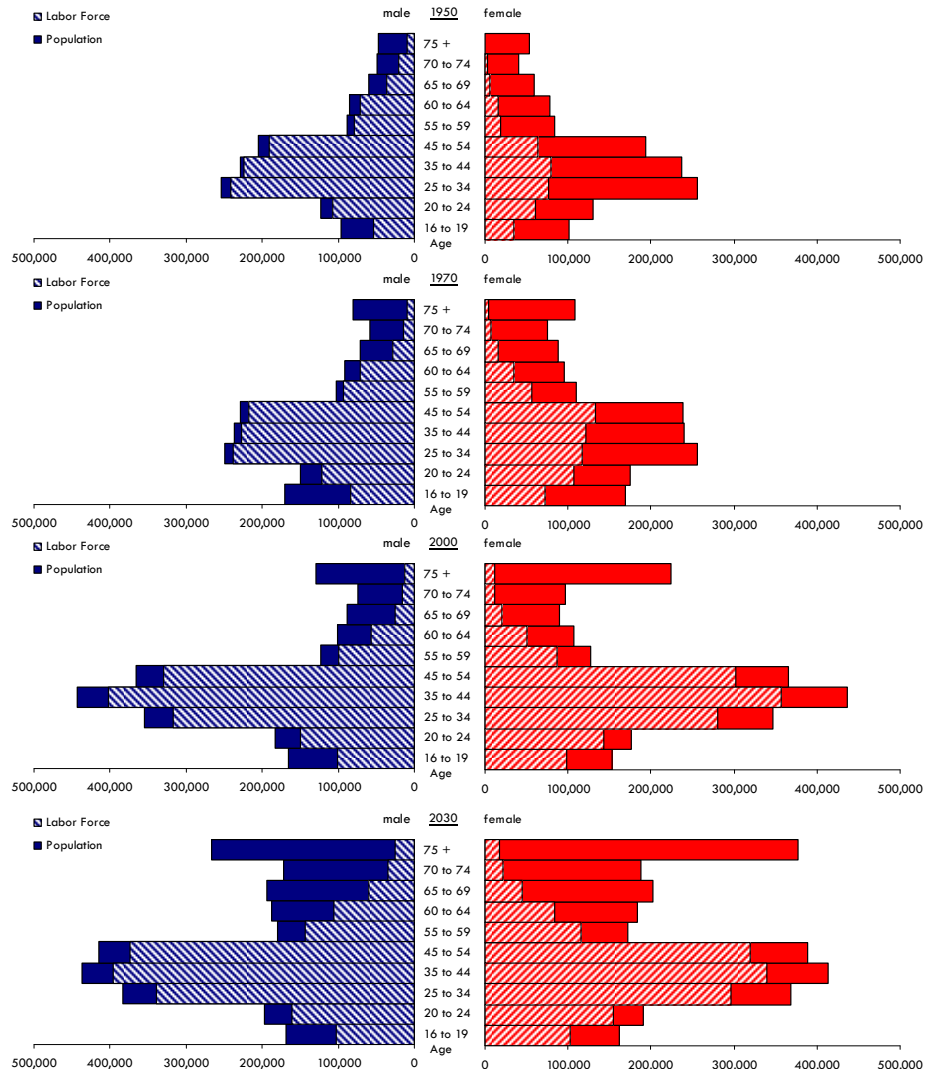
Two large influences affected the workforce as baby boomers came of working age. First, the sheer number of baby boomers swelled the workforce (a population influence). Second, and in addition, beginning in about 1965, female baby boomers altered the women's workforce contribution forever as the LFPR rates for baby boomer women increased three fold (a gender influence). Labor force growth among women was greater than for men in the rates of change and absolute terms between 1980 and 2000. Exhibit 7 shows labor force participation by gender over time.

Wisconsin's labor force grew by 458,000 people from 1980-1990, and 397,000 in the 1990-2000 timeframe. Both female and male population growth was similar during the period. However, the female component of labor force grew by about 20 percent compared with 5 percent for male growth. From 1980 to 2000, women's LFPR increased from 53.8 to 65.2 percent. Meanwhile, men's LFPR decreased from 76.2 percent in 1980 to 74.2 percent in 2000. As cohorts of baby boomer women approach older ages, they are participating in the labor force at higher rates than previous generations. Fifty-nine percent of women age 55 to 64 were in the labor force in 2000, compared with 46 percent in 1980. The difference between labor force participation rates for women and men has become more constant in recent years.

### Age and LFPR

Also of consequence for the workforce is that the LFPR changes with age, so LFPR by age plays an important role in tracking baby boomers influence on the labor force as well. Younger populations who are still in school devote less time to work and their participation in the labor force is lower than the population

Exhibit 7: Labor Force Participation by Gender Over Time



aged 25 to 54 years who are building equity, raising children, and saving for the future. In 2000, 72.8 percent of individuals aged 16 to 24 were active in the workforce. This compares to 85.9 percent of the 25 to 54 aged cohort. The LFPR tops out and begins to decline after 45 years of age. By age 55, labor force participation begins to wane as workers withdraw from the work force or retire.<sup>3</sup> At age 65, participation in the

<sup>3</sup> See discussion about retirement in last section.

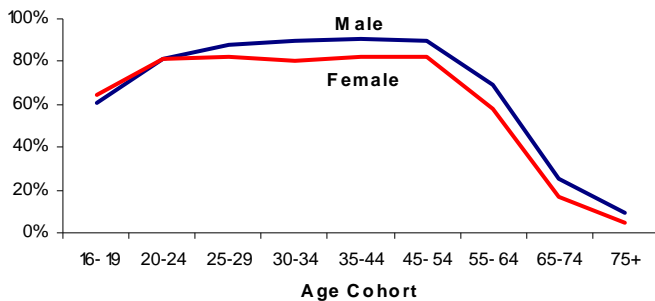




labor force plummets.

The LFPR for the 55 to 64 age cohort was 64 percent in 2000. The post-65 age cohort had a LFPR of 14 percent, with the 65-74 age cohort averaging about 20 percent and a LFPR of 7 percent for those over 75 years of age.

Exhibit 8: Labor Force Participation By Age Cohort

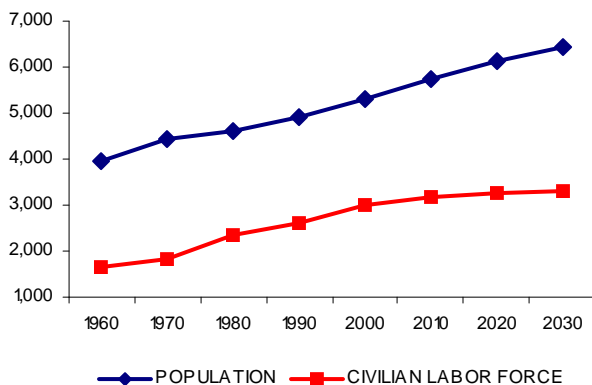


(Recent national surveys indicate that participation from the older population is increasing.<sup>4</sup> We discuss the outcome of this change below.)

### Future Labor Force Trends

At present, the labor force continues to increase, but at a slower rate. Baby boomers are beginning to exit the workforce. The first baby boomers became eligible for Social Security retirement benefits at the beginning of 2008, as they reached 62 years of age. The dramatic slowing of Wisconsin's labor force growth is related to both changing demographic characteristics and changes in labor force participation rates. The labor force is projected to grow by over 297,000 workers from 2000 to 2010, a 10.4 percent increase. In the following decade from 2010 to 2020, Wisconsin's

Exhibit 9: Wisconsin Population and Labor Force (in thousands)



<sup>4</sup> See discussion about retirement in last section.

sin's labor force is projected to reach a record 3.3 million individuals, but the increase will be only 101,000 workers, a 3.2 percent increase. By 2030, Wisconsin's workforce growth rate is actually expected to turn negative. Exhibit 9 shows that even as Wisconsin's population steadily grows, labor force growth will decrease in the future and eventually halt, perhaps even decline by 2030.

Keep in mind that the state's population is projected to increase through 2030. However, increases in the number of residents will not be evenly distributed across the age groups. In Wisconsin, and across the upper Midwest, an aging population, especially those aged 55 years and over, is the dominate cause for slower labor force growth as LFPR rates of older workers drop and baby boomers leave the workforce. In addition, from 2000-2015, Wisconsin's population aged 0-15 years shows a loss of 0.7 percent. Come 2030, the effects of a smaller young population begins to appear just as the bulk of baby boomers are exiting the workforce. The LFPR gains of the young working age population will be partially offset by the smaller numbers of that vintage of the cohort.

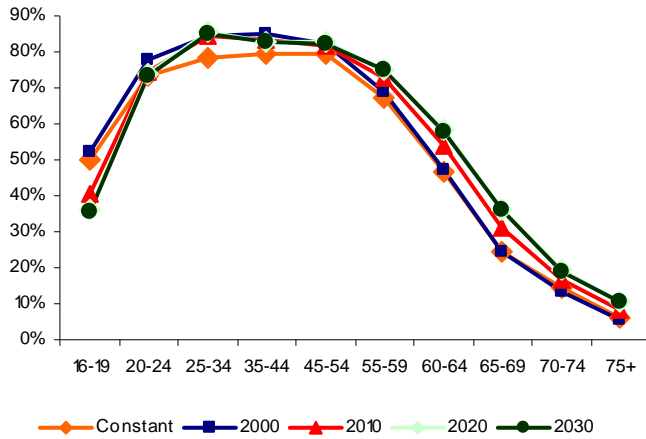
### Changes in Labor Force Participation Rates

It is expected that older workers will stay in the labor force longer than they had in the past. This change alters historic trends. Until recently, the LFPR in the U.S. and Wisconsin were on the decline. Now the baby boomers have turned this trend around. Reasons for the change are many: workers remain healthier and more invested in their careers; workers want to continue to contribute to society and the economy; workers need to continue working due to financial or benefits needs; and at the end of one career, boomers want to begin another. The U.S. Bureau of Labor Statistics (BLS) has recognized this new trend and updated its LFPR estimates. For example, the BLS LFPR for the 55-59 age cohort in the 2000 census base case was 67.0 percent. The new BLS LFPR for the 55-59 age cohort in the year 2010 is 72.8 percent and 75.0 percent in 2020. Exhibit 10 on the next page shows how BLS has pushed out the curves for LFPR to the year 2030. Interesting in the new BLS LFPR estimates is that the LFPR for the youngest cohorts actually decrease. The pursuit of more education and training is part of the reason for this change.

Incorporating the new BLS LFPR into our workforce projections helps relieve the worker shortage, but not by much and not for long. The new workforce calculations based upon the updated BLS figures adds 20,588 workers to Wisconsin's workforce in 2010, 38,824 in 2020, and actually subtracts 12,144 by 2030. The

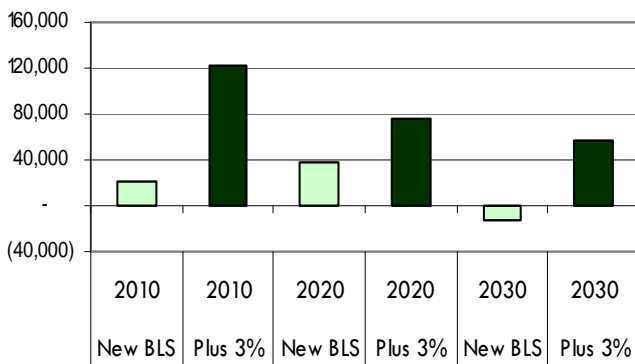
decline in 2030 is due to the lower LFPR of the youngest cohorts.

Exhibit 10: Changes in LFPR By Age Cohort



OEA developed a simple model to run other scenarios and calculate the changes in the workforce depending upon alternative LFPRs for older workers. Adding a reasonable yet significant increase of three percentage points to the LFPR for workers over 55 years of age to the new BLS coefficients yields an increase of 122,220 workers in 2010, 76,071 in 2020, and a positive contribution in 2030 of 56,680. (Seventy-six thousand is about the employment of the fabricated metal product manufacturing industry in Wisconsin.) These increases seem impressive and perhaps satisfactory to keep Wisconsin's workforce on the rise.

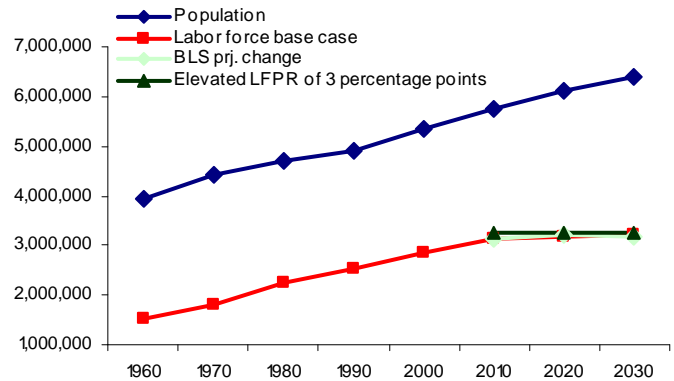
Exhibit 11: Worker Difference from Census 2000



However, when you compare the results of the new BLS LFPR coefficients or those of the three percentage point add-on case with the base case, the end result amounts to very little for Wisconsin's total labor market. Adding in those 39,000 workers to Wisconsin's labor force in 2020 from the new BLS coefficients amounts to just a 1.2 percent increase in the total workforce, less

for the 2010 and 2030 periods. Using the three percentage point add-on case coefficients, adds a significant 3.9 percent to the state's workforce in 2010, but the result is fleeting, yielding only a 2.4 percent increase by 2020 and 1.8 percent come 2030. See Exhibit 12 below.

Exhibit 12: Wisconsin Labor Force: Historic and Projected



Even with robust increases in LFPR, growth in Wisconsin's workforce is limited at best. The pending situation is unprecedented and largely unalterable. The economic impacts are huge.

### RAMIFICATIONS OF ZERO WORKFORCE GROWTH

The ramifications of zero growth in Wisconsin's workforce cannot be overstated. *Ceteris paribus*, unless worker productivity is increased at a rate sufficient to increase real earnings, the state's economy will stagnate. A flat workforce with no increase in productivity means no increase in earnings or the amount of goods and services produced. No increase in total earnings and an ageing population means the state will have to depend on increased flow of transfer payments to the older population to stimulate any increase in demand for goods and services. The real rate of growth in transfer payments has been less than the growth rate for earnings and, usually being adjusted to meet inflation affects, near zero. Moreover, goods and services demand from the elder cohort will be skewed to health care and social services. Concurrently, the aging population will seek more public health and social services, not to mention the need for accommodative infrastructure. In addition, without increases in tax rates at all levels, government revenues will also remain constant in real terms. Funding for new construction and maintenance of the infrastructure, from schools to roads to utility works to seniors' access accommodations will be increasingly burdensome to users with stagnant or decreasing real incomes.

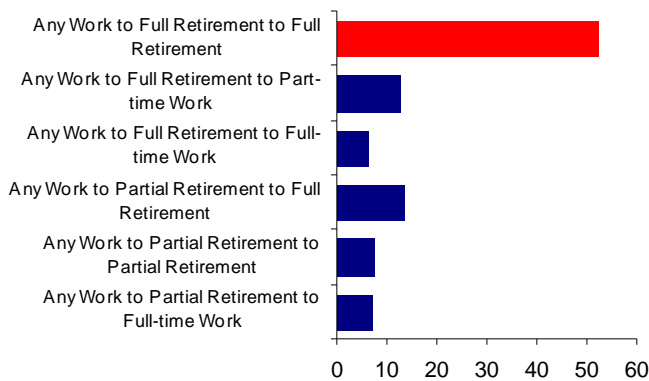
More research is required to assess the expected trends in worker skills and income growth as it pertains to the changing demographics of Wisconsin's workforce. What will happen to aggregate income in Wisconsin if the demographic, skills attainment, and income streams trend as expected? OEA is taking up the topic for study.

## RETIREMENT

Considering that the huge baby boomers cohort has entered the end stage of their work-life cycle, further examination of retirement trends can help us better understand what to expect in the coming years. Retirement is an interesting word – most of us assume we know what it means, but actually defining it turns out to be more of a task than we expected.

Workers retire for a variety of reasons. Economic concerns are naturally a big part of deciding when, or even if, a person can retire. If all retirement decisions were completely financial in nature, it would be a much simpler task to predict how and when the boomers will cascade out of the labor force. We could assume that anyone who had the appropriate resources would retire as soon as possible. However, we know that the decision to retire is far more complex, and at least as dependent on preferences and events that are not related to economic situations.

Exhibit 13: Percent of Post-Retirement Paths

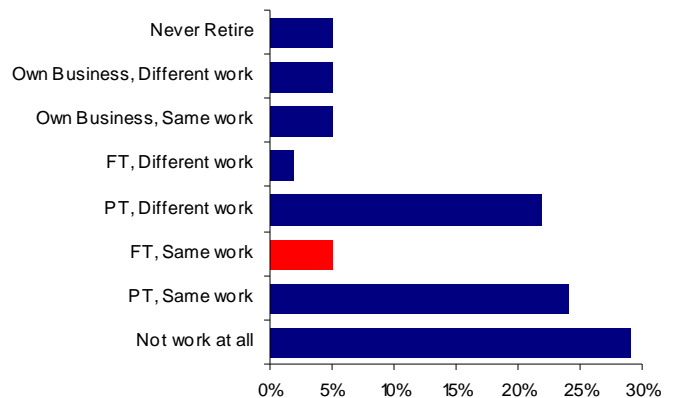


The problem is that a “one size fits all” description, like calling it the point at which a worker leaves the labor force after a lifetime of work, tends to understate how individual the path to retirement can be. Some people do indeed just quit the workforce. Over 50 percent retire and stay retired.<sup>5</sup> Others may only reduce their hours on their way to a full exit from the labor force. Some workers switch occupations in some-

thing of a working retirement. Some who leave the labor force actually return, in some cases part of a planned break, in others a reversal of their earlier decision. All this adds up to a concept of retirement that is really more of a process, rather than a one-way, once-in-a-lifetime event.

Recent national surveys indicate that participation from the older population is increasing.<sup>6</sup> Research suggests that the recent rise in labor force participation among older workers is due to a combination of factors. First, increased life expectancy and improved health of

Exhibit 14: Retirement Plans



this age group have made staying in the labor force beyond 65 both easier and more attractive. Second, increased economic opportunities for these older workers in terms of new careers or business options have held some in workforce. Third, inadequate retirement savings or Social Security payments might simply force people to stay in the labor force past the retirement age. Finally, increased health care costs, high out-of-pocket medical expenses, and the desire for employer-based health insurance are also important factors tying older workers to the labor force to a greater extent than in the past.

Recent surveys indicate that only 5 percent of older workers stay full-time in current positions.<sup>7</sup> Most others move on to other pursuits: part-time status, new occupations, new businesses, or quitting entirely.

Their pursuits are varied. The top three choices for continued employment of retiree are: consulting, teaching, and customer greeting.<sup>8</sup>

There's no question that businesses looking to recruit staff in the coming years will be hiring in a more challenging labor market. Wisconsin and many other areas will be forced to deal with stagnant, and possibly outright shrinking, labor pools. These circumstances will

<sup>5</sup> Maestas, Nicole; Table 1, Back to Work: Expectations and Realization of Work after Retirement, Rand, Revised March 2009.

<sup>6</sup> Gendell, Murray; *Older workers: increasing their labor force participation and hours of work*, Monthly Labor Review, January 2008.

<sup>7</sup> AARP, *Staying Ahead of the Curve 2003: The AARP Working in Retirement Study*, 2003.

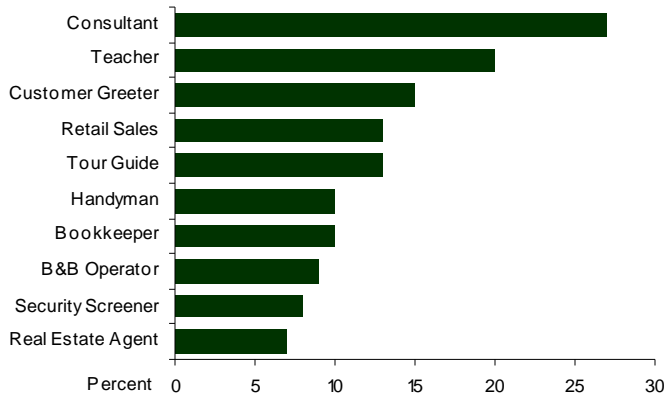
<sup>8</sup> *The 2006 Merrill Lynch New Retirement Study: A Perspective from Individuals and Employers*, Merrill Lynch, 2006.





spur employers to utilize every strategy and resource at their disposal to ensure that they have enough talented workers to expand, or even simply to replace retirees.

Exhibit 15: Occupation of Choice



There is no blanket solution to this problem. The combination of strategies used to attract experienced talent will depend on the characteristics of the individual business. One common strategy may be to retain retirement-eligible workers longer, or lure them back from retirement to ease business' workloads. Some businesses may substitute technology. Others may reach out to previously under-utilized sources of labor.

Regardless of the technique(s) used by business to attract talent, it will need to be a focused and concerted effort.