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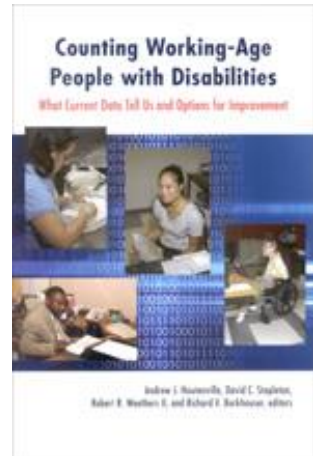
# Disability Prevalence and Demographics

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Chapter 3 (pp. 69-99) in:

**Counting Working-Age People with Disabilities: What Current Data Tell Us and Options for Improvement**

Andrew J. Houtenville, David C. Stapleton, Robert R. Weathers II, Richard V. Burkhauser, eds.

Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, 2009

DOI: 10.17848/9781441612687.ch3

# 3

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The estimates of the prevalence of disability from various major national surveys have a wide range, depending on which definition of disability is used (Weathers 2009). In this chapter, we focus on trends and demographic patterns in the prevalence of disability among the working-age population and how they vary with the definition used. As much of the research on disability trends has focused on those aged 65 and older, we begin with a brief summary of that literature, then consider the more sparse literature on the working-age population. We then use data from the American Community Survey (ACS), the Current Population Survey (CPS), and the National Health Interview Survey (NHIS) on the working-age household population to examine the following: how disability prevalence rates vary by state of residence, age, ethnicity, education, and sex; evidence on long-term trends in disability prevalence and the extent to which measured trends are sensitive to the definition of disability; how the aging of the baby boom generation (those born between 1946 and 1964) has affected long-term trends; and how long-term trends vary by demographic group.

These statistics have important policy implications for at least four reasons. First, the variation in prevalence across demographic groups will affect the targeting of resources to people with disabilities. For instance, variation in prevalence across states is one factor influencing the distribution of federal funding of programs such as Social Security Disability Insurance (SSDI), Supplemental Security Income, vocational rehabilitation, and Medicare and Medicaid, all of which provide benefits to the working-age population with disabilities. The resources at stake are considerable—public expenditures in federal and federal-state programs for working-age people with disabilities totaled an estimated \$276 billion in 2002 (Goodman and Stapleton 2007).

Second, changes in the prevalence of disability in the working-age population influence the productivity of this population, as well as public expenditures and revenues. The employment rate for working-age people with disabilities is much lower than it is for those without disabilities (see Weathers and Wittenburg 2009), so other things held constant, increases in prevalence will lead to reductions in the overall employment rate and lower tax revenues. Federal expenditures to support working-age people with disabilities nearly doubled as a share of all federal outlays from 1984 to 2002 (Goodman and Stapleton 2007). It would be useful to know the extent to which changes in prevalence contributed to that growth.

Third, predictable changes in the demographic composition of the working-age population produce predictable changes in disability prevalence and its effects on public programs. Most notably, the aging of the workforce is having a positive effect on entry of workers into SSDI and Medicare. Increases in prevalence caused by aging are likely to have different implications for public policy than increases attributable to other factors.

Fourth, compositional changes also affect different measures of the well-being of people with disabilities, such as household income (see Burkhauser, Rovba, and Weathers 2009) and poverty rates (see Burkhauser, Houtenville, and Rovba 2009). The distinction between changes in these measures reflecting compositional shifts in the age distribution of workers and those that reflect changes within demographic subgroups have different policy implications. For instance, increases within age groups might signal a need for policy change, whereas in-

creases that reflect compositional changes might suggest reallocation of resources across groups, but no fundamental policy change. How best to react to a change in the prevalence of disability depends on the underlying causes of the change.

## BACKGROUND

The *2006 Disability Status Report* (Rehabilitation Research and Training Center on Disability Demographics and Statistics 2007) demonstrates wide variation in prevalence of disability by age, sex, race, ethnicity, and state, using 2006 ACS data. In the next section, we present similar ACS statistics and provide statistics on trends in prevalence from the NHIS and the March Annual Social and Economic Supplement of the CPS (March CPS). We first briefly summarize the extensive literature on prevalence trends among those aged 65 and older and consider the extent to which the lessons learned from this group are applicable to the working-age population. We then turn to the less extensive literature on the working-age population.

One might expect that factors such as medical advances which reduce the risk of death at a given age would also decrease the risk of having a severe disability.<sup>1</sup> For example, Cutler, Landrum, and Stewart (2006) found that improved medical care for cardiovascular disease reduced both disability and death between 1984 and 1999. However, this does not mean that the size of the disabled population is necessarily decreasing. Any decline in the risk of having a severe disability could be more than offset by an increase in the number of people who continue to survive another year with their severe disability.

This is not a trivial statistical point but one with major consequences for the allocation of resources in our society. In the extreme, if the entire improvement in longevity late in life is a function of surviving longer with a severe disability, then this has much greater implications for future social benefits and costs and for the allocation of resources than does the opposite; that is, that the improvement in longevity is a function of being free of severe disabilities.

Freedman, Martin, and Schoeni (2002) provide a systematic review of 12 major studies on trends in the prevalence of disability in elderly populations. They found a general consensus with regard to trends in the prevalence of limitations on instrumental activities of daily living (IADLs) that are *not* accompanied by limitations on activities of daily living (ADLs), or what they called “IADLs-only.”<sup>22</sup> Using NHIS data, Crimmins, Saito, and Reynolds (1997) found a decline of 0.7 percentage points (from 14.5 percent to 13.8 percent) in the prevalence of IADLs-only among the population 70 years and older from 1982 to 1993. Using the same data, Schoeni, Freedman, and Wallace (2001) found a further decline in the prevalence of IADLs-only to 10.9 percent in 1996. Using data from the National Long Term Care Survey (NLTCs), Manton and Gu (2001) also found a decline in the age-adjusted IADL-only prevalence among the population 65 years and older, from 6.2 percent in 1984 to 3.2 percent in 1999.

In contrast, studies that focused on ADL limitations have shown mixed results (e.g., Freedman, Martin, and Schoeni 2002). Notably, using the NHIS data, Crimmins, Saito, and Reynolds (1997) and Schoeni, Freedman, and Wallace (2001) found neither an increase nor a decrease in the prevalence of ADL limitations during the 1980s and the early–mid 1990s among people aged 70 and older. Manton and Gu (2001), however, found a decline in the prevalence of ADL limitations between 1982 and 1999, based on the NLTCs data.

A 12-person technical working group, funded by the National Institute on Aging, was convened to reconcile the results from numerous studies and to consider the impact of the wording of questions, survey design, and analytical approach. Although the results were still somewhat unclear, the panel concluded that a per-year decline of about 1.0 percent to 2.5 percent in the prevalence of disability occurred in the mid–late 1990s among the elderly when disability was measured as having difficulty with daily activities and needing help with daily activities (Freedman et al. 2004).

The generally accepted conclusion that there has been a decline in disability among the elderly does not extend to the working-age population. Much less attention has been paid to trends in disability of the latter population, and even less is known with certainty. Using the NHIS data and defining disability as the presence of an ADL and/or IADL

limitation, Lakdawalla, Bhattacharya, and Goldman (2004) found an 18 percent rise in disability rates between 1984 and 1996 among noninstitutionalized persons aged 18–69.<sup>3</sup> This increase differed greatly across sub-age groups, and the estimates were strikingly high for those in their prime working years, ages 30–49 (Table 3.1). In contrast, when using the NHIS data for the period following the 1997 NHIS revision, they found no statistically significant changes from 1997 through 2000.

Lakdawalla, Bhattacharya, and Goldman (2004) suggested that two general phenomena may have caused the rise in disability prevalence between 1984 and 1996: 1) changes in the underlying health of the population and/or 2) changes in the reporting of disabilities. They offer obesity as one example of a possible cause that could reflect underlying health changes. Changes in reporting are potentially linked to expansion in the eligibility criteria for SSDI initiated by the Social Security Amendments of 1984, especially for those with psychiatric impairments, followed by changes to the SSA's eligibility criteria for mental disorders in 1985 as well as a later series of court decisions to expand eligibility (Autor and Duggan 2003; Rupp and Stapleton 1995). These changes increased the incentive to report a disability. As a consequence of SSA's indexing methodology, the dollar value of SSDI benefits relative to wages for low-skilled workers increased, which might also have increased the incentives for reporting work limitations (Autor and Duggan 2003; Lakdawalla, Bhattacharya, and Goldman 2004).

Based on the NHIS data, the Institute of Medicine (Institute of Medicine 2007) provided a descriptive look at disability trends from 1984 to 2004 for persons aged 18–44 and 45–64. The findings confirm

**Table 3.1 Estimated Increase in Disability Prevalence by Age, 1984–1996**

Age group	Increase from 1984 to 1996 (%)
18–29	18
30–39	52
40–49	46
50–59	20
60–69	0

SOURCE: Lakdawalla, Bhattacharya, and Goldman (2004).

and extend the results from Lakdawalla, Bhattacharya, and Goldman (2004)—IADL-only trends were estimated to be flat into the mid 2000s. The report also described trends using part of the NHIS work-limitation question. From 1984 to 1996, the percentage of those unable to work rose slightly for persons aged 18–44 but declined for the 45–64 group. From 1997 to 2004, the percentage of those unable to work declined slightly for both groups.

All of the above work casts doubt on our ability to generalize from results about disability prevalence among the elderly to the working-age population, and highlights the importance of studying the latter group in their own right.

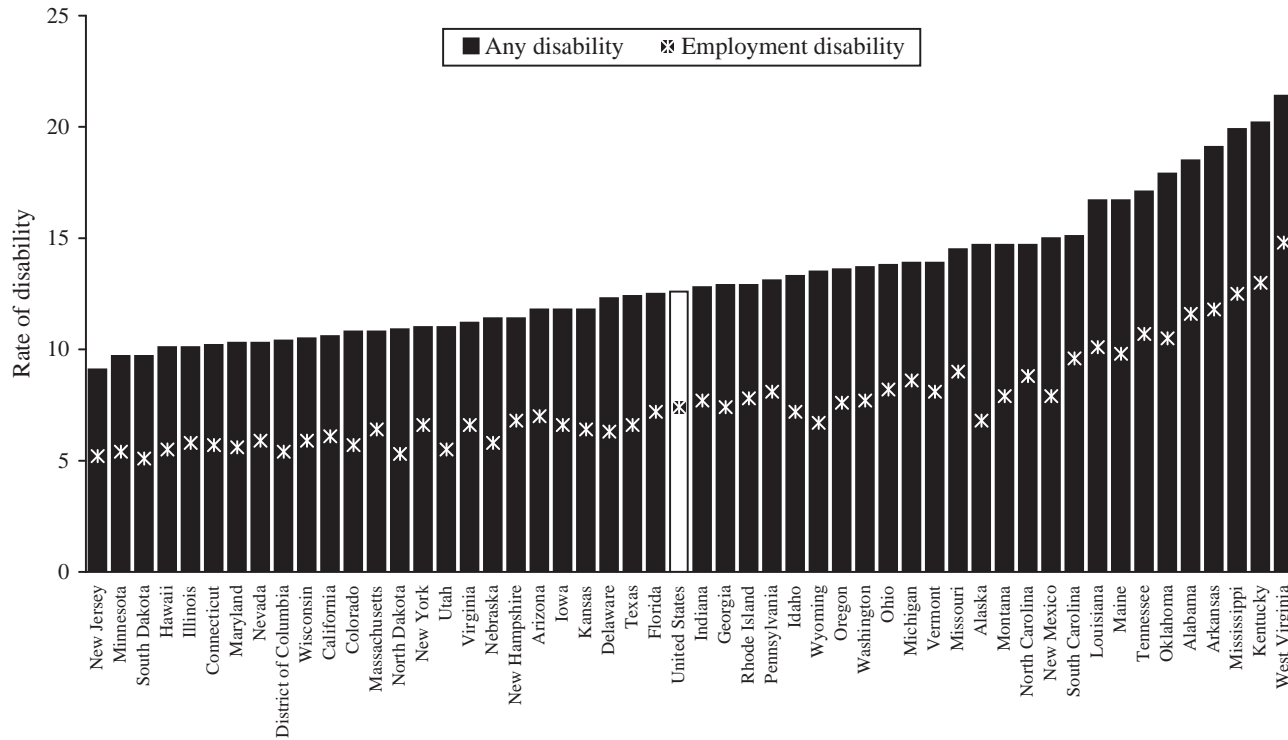
## **PREVALENCE STATISTICS FOR STATES AND DEMOGRAPHIC GROUPS**

In this section we extend the work of Crimmins, Reynolds, and Saito (1999), Lakdawalla, Bhattacharya, and Goldman (2004), and the Institute of Medicine (2007) report by 1) examining variation in disability rates across location and demographic characteristics, 2) expanding the time frame to 2007, and 3) comparing results across data sources and disability definitions.

### **State Statistics**

Tremendous variation in disability rates exists across the states. In 2006, the percentage of the working-age household population that reported having any disability ranged from a low of 9.1 percent in New Jersey to a high of 21.4 percent in West Virginia (Table 3.2 and Figure 3.1). Minnesota and South Dakota are the only other states to have disability rates below 10 percent, and southern states generally have higher disability rates. Eight of the 10 states with the highest prevalence rates (15 percent or higher) are in the South, and the top five states are all in the South (Alabama, Arkansas, Mississippi, Kentucky, and West Virginia). Different measures of disability display a similar pattern. The percentage of people reporting a work limitation ranges from 5.1 per-

**Figure 3.1 Prevalence of Any Disability in the Working-Age Population (Aged 25–61) by State, 2006**



SOURCE: 2006 ACS Public Use Microdata Sample



**Table 3.2 Disability Prevalence (%) in the Working-Age Household Population by State, 2006**

State	Any disability	Sensory disability	Physical disability	Mental disability	Self-care disability	Go-outside-home disability	Employment disability
U.S.	12.6	2.9	7.8	4.5	2.2	3.2	7.4
Alabama	18.5	4.3	12.2	7.0	3.5	5.0	11.6
Alaska	14.7	3.6	8.9	5.1	1.7	2.8	6.8
Arizona	11.8	2.7	7.4	4.3	2.0	3.0	7.0
Arkansas	19.1	4.7	12.8	7.1	3.6	5.1	11.8
California	10.6	2.2	6.3	3.8	1.9	2.7	6.1
Colorado	10.8	2.8	6.4	4.0	1.8	2.5	5.7
Connecticut	10.2	2.1	6.2	3.7	1.6	2.5	5.7
Delaware	12.3	2.3	8.1	4.2	2.5	2.8	6.3
District of Columbia	10.4	2.2	5.7	3.9	1.5	2.3	5.4
Florida	12.5	3.0	8.0	4.3	2.3	3.2	7.2
Georgia	12.9	3.2	7.9	4.5	2.2	3.3	7.4
Hawaii	10.1	2.2	6.3	3.4	1.3	2.4	5.5
Idaho	13.3	3.6	7.9	5.5	2.0	2.8	7.2
Illinois	10.1	2.2	6.1	3.4	1.9	2.7	5.8
Indiana	12.8	2.9	8.0	4.6	2.2	3.3	7.7
Iowa	11.8	2.6	7.2	4.4	1.7	2.4	6.6

Kansas	11.8	2.7	7.5	4.2	1.9	2.5	6.4
Kentucky	20.2	4.9	13.3	7.8	3.7	5.2	13.0
Louisiana	16.7	4.2	10.6	6.1	3.1	4.2	10.1
Maine	16.7	3.5	9.8	6.8	2.5	3.3	9.8
Maryland	10.3	1.9	6.3	3.5	1.7	2.7	5.6
Massachusetts	10.8	2.2	6.2	3.9	1.7	2.6	6.4
Michigan	13.9	3.0	8.6	5.4	2.8	3.8	8.6
Minnesota	9.7	2.3	5.4	3.5	1.4	2.1	5.4
Mississippi	19.9	5.2	12.8	7.7	4.2	5.5	12.5
Missouri	14.5	3.4	9.5	5.6	2.7	4.0	9.0
Montana	14.7	4.6	8.9	5.2	1.9	3.3	7.9
Nebraska	11.4	2.6	6.8	3.8	1.4	2.0	5.8
Nevada	10.3	2.1	6.8	3.0	1.8	2.8	5.9
New Hampshire	11.4	2.7	6.2	4.6	2.0	3.1	6.8
New Jersey	9.1	2.0	5.6	3.1	1.8	2.6	5.2
New Mexico	15.0	4.0	9.3	5.9	2.6	3.4	7.9
New York	11.0	2.2	6.8	3.6	1.9	2.8	6.6
North Carolina	14.7	3.2	9.5	5.1	2.6	3.6	8.8
North Dakota	10.9	2.3	6.7	4.1	1.1	1.9	5.3

(continued)

**Table 3.2 (continued)**

State	Any disability	Sensory disability	Physical disability	Mental disability	Self-care disability	Go-outside-home disability	Employment disability
Ohio	13.8	3.0	8.5	5.1	2.5	3.6	8.2
Oklahoma	17.9	4.8	11.6	6.3	3.2	4.1	10.5
Oregon	13.6	3.1	8.4	4.9	2.2	3.0	7.6
Pennsylvania	13.1	2.7	8.2	4.6	2.4	3.5	8.1
Rhode Island	12.9	2.5	7.3	4.6	2.0	2.8	7.8
South Carolina	15.1	3.4	10.0	5.3	3.0	4.3	9.6
South Dakota	9.7	2.6	6.4	3.2	1.5	2.1	5.1
Tennessee	17.1	4.3	11.1	6.7	3.0	4.6	10.7
Texas	12.4	3.2	7.8	4.3	2.3	3.1	6.6
Utah	11.0	2.7	6.0	3.9	1.6	2.4	5.5
Vermont	13.9	3.1	8.6	5.5	1.4	3.1	8.1
Virginia	11.2	2.4	7.2	3.8	1.9	2.7	6.6
Washington	13.7	3.3	8.2	5.3	2.2	3.2	7.7
West Virginia	21.4	5.3	15.3	8.3	4.0	6.0	14.8
Wisconsin	10.5	2.3	6.5	4.1	1.9	2.4	5.9
Wyoming	13.5	4.4	7.8	4.6	2.6	3.2	6.7

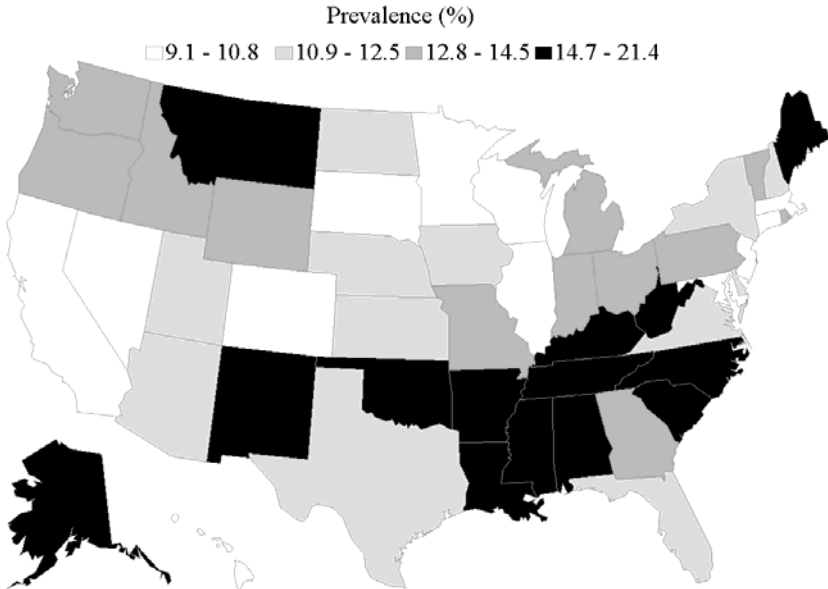
SOURCE: Tabulations by the authors of the 2006 household ACS sample for persons aged 25–61.

cent in South Dakota to 14.8 percent in West Virginia, and the same five southern states report the highest work limitation rates.<sup>4</sup> Maine and Missouri are the only two nonsouthern states in this top ten. The map in Figure 3.2 shows a band of high disability prevalence rates that sweeps across Appalachia into the South, extending west to Oklahoma and New Mexico.

### Statistics for Demographic Groups

Table 3.3 shows 2006 disability rates for the working-age population by sex, age, race/ethnicity, and education.<sup>5</sup> As would be expected, prevalence increases rapidly with age: 55–61-year-olds have rates that are more than triple those for 25–34-year-olds within all disability categories except mental (where it is still more than double). Differences in prevalence rates by race/ethnicity are very high—only 6 percent of

**Figure 3.2 Prevalence of Disability in the Working-Age Household Population (Aged 25–61), 2006**



SOURCE: Authors' calculations based on the 2006 ACS household sample.

**Table 3.3 Disability Prevalence (%) by Demographic Group, 2006<sup>a</sup>**

Survey and disability type	Sex			Age group				Race/ethnicity <sup>b</sup>					Education				
	Total	Men	Women	25–34	35–44	45–54	55–61	White	Black	Native American/ Alaskan Native	Asian	Some other race(s)	Hisp.	Less than HS	High school	Some coll.	Coll. or more
ACS																	
Any	12.6	12.4	12.9	7.0	9.8	15.3	22.2	12.3	17.3	22.2	6.0	12.0	10.3	23.5	15.3	12.4	5.6
Sensory	2.9	3.3	2.4	1.5	2.2	3.4	5.4	2.9	3.4	6.2	1.3	3.1	2.6	5.3	3.4	2.8	1.4
Physical	7.9	7.3	8.4	3.0	5.6	10.1	16.0	7.7	11.2	14.9	3.0	7.3	6.2	14.7	9.6	7.9	3.2
Mental	4.5	4.4	4.7	3.2	3.9	5.4	6.5	4.4	6.3	8.8	1.9	4.3	3.6	10.8	5.4	4.0	1.6
Self-care	2.2	2.0	2.5	0.9	1.6	2.9	4.3	2.1	3.6	4.5	0.8	2.1	1.7	4.8	2.7	2.1	0.8
Go-outside-home	3.2	2.8	3.6	1.7	2.5	3.9	5.6	3.0	4.8	6.1	1.9	3.0	2.6	7.4	3.9	2.8	1.1
Employment Disability	7.4	7.1	7.7	3.5	5.5	9.2	14.0	7.2	10.9	13.3	3.3	6.5	5.4	15.6	9.2	6.9	2.6
March CPS																	
Work limitation	8.4	8.2	8.6	3.9	6.5	10.5	15.5	8.2	13.5	NA	NA	NA	5.8	16.9	10.5	7.7	3.4

<sup>a</sup>Persons in the Armed Forces excluded.

<sup>b</sup>White Hispanics and black Hispanics are coded as Hispanic.

SOURCE: Calculations by the authors from the 2006 March CPS and the 2006 ACS.

Asian Americans report any disability in the ACS, compared to 17 percent for blacks/African Americans and 22 percent for Native Americans. The well-known negative association between education and disability is also evident. Those with less than a high school education are about five times more likely to report a work-limitation disability than those with a college degree, five times more likely to report a physical disability, and seven times more likely to have a mental disability. There are many possible explanations of the variation across education levels including nature of jobs held, lower levels of educational attainment among children and youth with disabilities, and relationships between education and nutrition, exercise, smoking, and medical care.

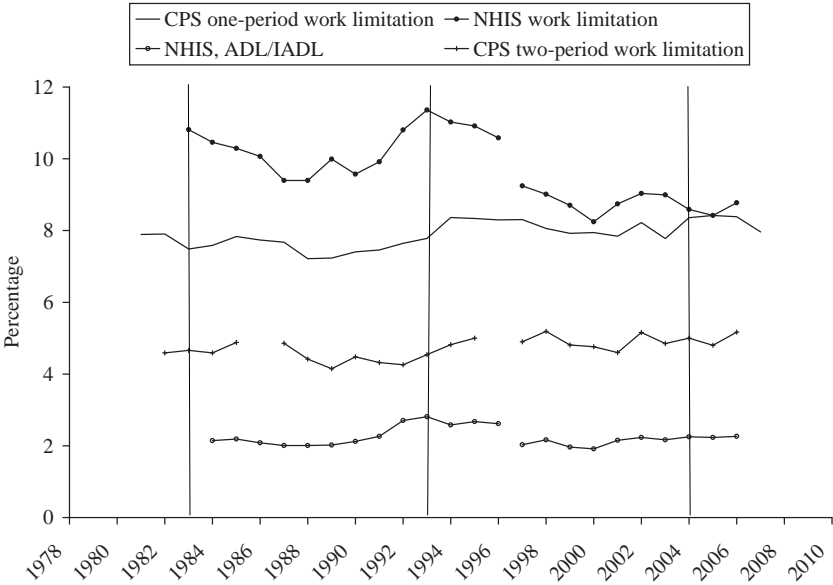
The patterns based on sex are less clear. Using the ACS data for 2006, prevalence of a disability among women is about 0.5 percentage points higher than among men. But there are large differences for specific disabilities. Men are 38 percent more likely to have a sensory disability (3.3 percent for men compared to 2.4 percent for women). In contrast, women are 28 percent more likely than men to report a “go-outside-home” disability (3.6 percent of women and 2.8 percent of men).<sup>6</sup>

The bottom row of Table 3.3 shows that variation in the prevalence of work limitations within these subgroups, as measured by the CPS, is similar to the variation in the prevalence of employment disability, as measured in the ACS, even though the prevalence of work limitations is slightly higher.

### **Prevalence Trends**

The direction of long-term trends depends on which definition of disability is used (Figure 3.3 and Table 3.4). The four different measures presented here are the work-limitation measures from the March CPS and the NHIS, the ADL/IADL measure from the NHIS, and a longer term work-limitation measure from the March CPS. This longer term measure takes advantage of the rotating panel used for the CPS interviews—some respondents to each March survey are reinterviewed the following year. Longer term work-limitation prevalence is defined as the percentage of such respondents who reported a work limitation in both the current and the previous interview. The NHIS figures from

**Figure 3.3 Disability Prevalence Rates for the Working-Age Population, by Data Source and Disability Measure, 1981–2007**



NOTE: There were extensive changes to the NHIS in 1997. Statistics from 1998 onwards are not comparable to statistics from earlier years. Matched CPS data for the two period work limitation measure are not available in 1986, 1996, and 2007 due to changes in the sampling frame.

SOURCE: Calculations by the authors. See Table 3.4.

before 1997 are not comparable to the data gathered after that year because of extensive changes to the NHIS in 1997. Also, CPS matched data are not available in 1986, 1996, or 2007 because of changes in the sampling frame that were implemented in those years.<sup>7</sup> All of the statistics presented are dated with the year in which the survey was conducted.<sup>8</sup>

Overall, none of the time series presents a definitive trend either upward or downward for disability rates. All but one—the NHIS work-limitation measure after 1997—show some slight upward trend. The CPS work-limitation measure is less than 8 percent in every year before 1994 and greater than 8 percent in 9 out of the 14 years since then. Simi-

**Table 3.4 Disability Prevalence Statistics (%) for the Working-Age Population, 1981–2007**

Survey year	March CPS		NHIS	
	One-period work limitation	Two-period work limitation <sup>b</sup>	Work limitation	ADL/IADL
1981	7.9	—	—	—
1982	7.9	4.6	—	—
<b>1983</b>	<b>7.5</b>	<b>4.7</b>	<b>10.8</b>	—
1984	7.6	4.6	10.5	2.2
1985	7.8	4.9	10.3	2.2
1986	7.7	—	10.0	2.1
1987	7.7	4.9	9.4	2.0
1988	7.2	4.4	9.4	2.0
1989	7.2	4.2	10.0	2.0
1990	7.4	4.5	9.6	2.1
1991	7.5	4.3	9.9	2.3
1992	7.7	4.3	10.8	2.7
<b>1993</b>	<b>7.8</b>	<b>4.5</b>	<b>11.4</b>	<b>2.8</b>
1994	8.4	4.8	11.0	2.6
1995	8.3	5.0	10.9	2.7
1996	8.3	—	10.6	2.6
1997 <sup>a</sup>	8.3	4.9	9.3	2.0
1998	8.1	5.2	9.0	2.2
1999	7.9	4.8	8.7	2.0
2000	7.9	4.8	8.3	1.9
2001	7.8	4.6	8.7	2.2
2002	8.2	5.2	9.0	2.2
2003	7.8	4.9	9.0	2.2
<b>2004</b>	<b>8.4</b>	<b>5.0</b>	<b>8.6</b>	<b>2.3</b>
2005	8.4	4.8	8.4	2.2
2006	8.4	5.2	8.8	2.3
2007	8.0	—	—	—

NOTE: Years in bold are the trough years of the business cycle.

<sup>a</sup>There were extensive changes to NHIS in 1997. Statistics from 1998 onward are not comparable to statistics from earlier years.

<sup>b</sup>Matched CPS data for the two-period work-limitation measure are not available in 1986, 1996, and 2007 due to changes in the sampling frame.

SOURCE: Calculations by the authors from the 1981–2007 March CPS, 1983–1996 NHIS, and 1997–2006 NHIS (Person Files).



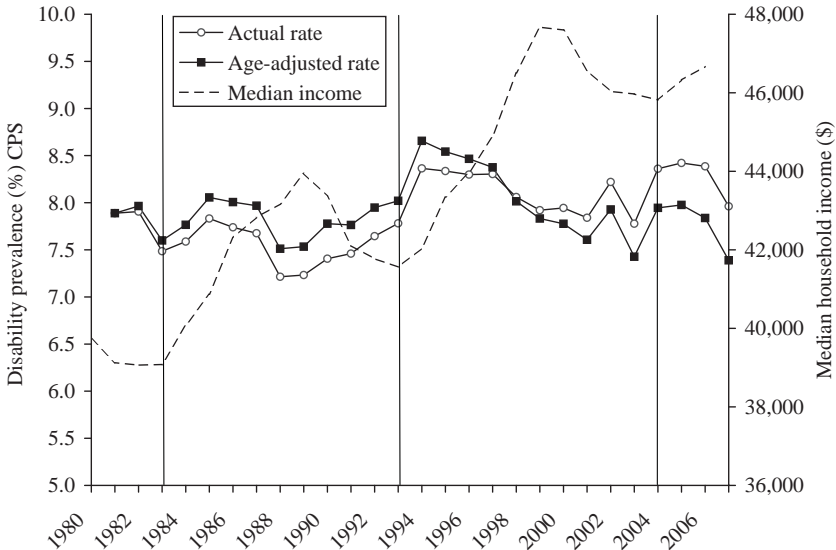
larly, the percentage of people with a longer term work limitation in the matched CPS data is less than 5 percent in every year before 1995 and greater than 5 percent in 5 out of the 11 years since then.<sup>9</sup>

Employment, income, and poverty statistics vary with the business cycle, as illustrated in Chapters 4, 5, and 6, respectively. Hence, in assessing trends in such statistics, it is important to consider comparable points in the business cycle, which can potentially affect the prevalence of work limitations as well. Workers who have been laid off for any reason might be more inclined to report a work limitation than they would if they were still working, especially if they have applied for, or even obtained, SSDI benefits (Autor and Duggan 2003; Lakdawalla, Bhattacharya, and Goldman 2004). If recession-induced increases in SSDI awards have an effect on prevalence trends, the effect might persist even as the economy recovers because only a tiny fraction of beneficiaries leave the rolls to return to work.

To assess the sensitivity of prevalence statistics to such effects, we examined the trends leading up to the three business cycle trough years in our sample period—1983, 1993, and 2004.<sup>10</sup> The statistics suggest a modest effect. For example, from 1989 (near the peak of the 1980s business cycle) to 1993 (the next trough), the one-period CPS work-limitation prevalence measure increased by 7.6 percent and the two-period measure increased by 9.4 percent, the NHIS work-limitation measure increased by 13.7 percent, and the NHIS ADL/IADL measure increased by 39.1 percent. A substantial share of the increase for each measure might reflect other factors, however, because all the measures were increasing during the 1980s expansion. Much smaller increases were observed for all four measures from the business cycle peak of 1999 to the trough of 2004.<sup>11</sup> We will return to this issue later when we consider the effect of the baby boom on prevalence statistics.

If prevalence statistics are sensitive to the business cycle, then assessments of long-term prevalence trends should only compare similar points in the business cycle. A comparison of the prevalence statistics from the three business cycle troughs within the time period examined suggests that there may have been some increase in disability prevalence rates (see Figure 3.4). From the 1983 trough to the 1993 trough, the one-period CPS measure increased by 3.9 percent and the NHIS work-limitation measure increased by 5.1 percent, but the two-period

**Figure 3.4 The Prevalence of Work Limitations, Before and After Adjustment for Age, and Median Household Income, 1980–2007**



SOURCE: Calculations by the authors using March CPS 1981–2007. Since the CPS asks about income earned in the previous year, the median income series goes from 1980 until 2006. See Table 3.5.

CPS measure actually decreased by 2.6 percent. From the 1993 trough to the 2004 trough, the one-period CPS measure increased by 7.5 percent and the two-period CPS measure increased by 10.1 percent. The NHIS statistics are not comparable for these two years, because of the substantial revisions in 1997.

### Aging of the Baby Boom Cohort

One possible cause of these increases in disability prevalence statistics for working-age people is the aging of the baby boom cohort. The oldest members of this large cohort were born in 1946 and turned age 34 in 1980. By 2006, they had turned 60, increasing the average age of the working-age population markedly during this period.

In contrast to the aggregate trends presented above, trends for those aged 55–61 in the CPS work-limitation prevalence statistics indicate a decline in disability prevalence since the early 1980s (Table 3.5). However, the prevalence rate for those aged 45–54 was almost the same in 1983 and 1993 but higher in 2004. It is the increase in the size of this group and the older group (which has far higher absolute levels of disability, despite the observed decline for the group) that explains the overall increase from 1993 to 2004. The prevalence rates for the two younger groups both rose slightly from 1983 to 1993 and were either lower or the same as for 1993 in 2004.

To control for the effect of aging on prevalence statistics, we produced one-period CPS work-limitation prevalence statistics adjusted for changes in the age distribution of the working-age population. To generate these statistics, we first produced prevalence statistics for five-year age groups in each year and then weighted them by their estimated population shares in 1981.<sup>12</sup> This series can be interpreted as representing what the current-year prevalence would be if the age distribution within the working-age population was the same as it was in 1981.

The age-adjusted prevalence rate was greater than the unadjusted series in the early 1980s as the baby boom cohort increased the share of young adults in the working-age population. It then decreased relative to the unadjusted series in the 1990s as the cohort aged (Figure 3.4).

Figure 3.4 also shows that the age-adjusted prevalence of work limitations increased somewhat from 1983 to 1993, but it declined slightly from 1993 to 2004. Finally, the figure shows that the age-adjusted work-limitation series is less sensitive to the business cycle than the unadjusted series. This is because the aging of the baby boom cohort contributed to the growth in unadjusted prevalence leading up to the trough years of 1993 and 2004. The effect of the adjustment is especially large for the last trough period observed; from 1999 to 2004, the unadjusted series increased by 5.5 percent, whereas the adjusted series increased by only 1.5 percent.

We also produced age-adjusted series for seven disability measures developed from the NHIS for the period from 1997 to 2006 (Table 3.6). The disability measures used are defined by Weathers (2009); see also Hendershot, Harris, and Stapleton (2009). This period only includes one of the three business cycle troughs, so it is not possible to make trough-

**Table 3.5 Prevalence of Work Limitations by Age (%), and Age-Adjusted Prevalence (%), 1981–2007**

Survey year	25–34	35–44	45–54	55–61	All ages	Age-adjusted
1981	4.0	5.9	10.3	16.9	7.9	7.9
1982	3.9	5.9	10.4	17.4	7.9	8.0
<b>1983</b>	<b>3.8</b>	<b>5.7</b>	<b>9.7</b>	<b>16.7</b>	<b>7.5</b>	<b>7.6</b>
1984	4.1	5.6	9.8	17.1	7.6	7.8
1985	4.1	6.0	10.2	17.6	7.8	8.1
1986	4.4	6.0	9.8	17.2	7.7	8.0
1987	4.4	6.2	9.5	17.0	7.7	8.0
1988	4.4	6.0	8.6	15.7	7.2	7.5
1989	4.0	6.3	9.0	16.0	7.2	7.5
1990	4.2	6.0	9.5	16.6	7.4	7.8
1991	4.4	6.3	9.4	15.8	7.5	7.8
1992	4.6	6.4	9.7	15.9	7.7	8.0
<b>1993</b>	<b>4.8</b>	<b>6.5</b>	<b>9.7</b>	<b>15.6</b>	<b>7.8</b>	<b>8.0</b>
1994	5.1	7.0	10.7	17.0	8.4	8.7
1995	4.7	7.3	10.6	16.7	8.3	8.5
1996	4.5	7.3	10.5	16.8	8.3	8.5
1997	4.3	7.1	10.6	16.9	8.3	8.4
1998	3.7	7.0	10.5	16.5	8.1	8.0
1999	3.8	6.7	10.0	16.2	7.9	7.8
2000	3.8	6.7	9.8	16.1	7.9	7.8
2001	3.7	6.2	10.2	15.5	7.8	7.6
2002	4.0	6.6	10.2	16.3	8.2	7.9
2003	3.8	6.2	9.9	14.4	7.8	7.4
<b>2004</b>	<b>4.3</b>	<b>6.5</b>	<b>10.5</b>	<b>15.3</b>	<b>8.4</b>	<b>8.0</b>
2005	4.4	6.6	10.4	15.4	8.4	8.0
2006	3.9	6.5	10.5	15.5	8.4	7.8
2007	3.7	5.6	10.3	14.9	8.0	7.4

NOTE: Years in bold are the trough years of the business cycle as calculated using the median household income from the March CPS of the following year. See Figure 3.4 and Burkhauser, Rovba, and Weathers (2009).

SOURCE: Calculations of the authors.

**Table 3.6 NHIS Disability Prevalence and Age-Adjusted Disability Prevalence Statistics (%), 1997–2006**

Year	Any disability		Sensory		Physical		Mental		Self-care		IADL		Work limitation	
	Actual	Age adj.	Actual	Age adj.	Actual	Age adj.	Actual	Age adj.	Actual	Age adj.	Actual	Age adj.	Actual	Age adj.
1997	16.4	16.4	2.1	2.1	10.2	10.2	3.3	3.3	0.6	0.6	1.8	1.8	9.7	9.7
1998	15.7	15.6	1.9	1.9	9.7	9.6	3.2	3.2	0.7	0.7	2.0	2.0	9.3	9.3
1999	15.1	14.8	2.1	2.1	8.9	8.7	2.6	2.6	0.8	0.7	1.8	1.8	9.4	9.2
2000	15.2	14.8	1.9	1.8	9.6	9.4	2.8	2.7	0.8	0.8	1.8	1.8	8.8	8.6
2001	17.1	16.5	2.2	2.1	10.8	10.4	3.4	3.4	1.0	1.0	2.3	2.2	9.5	9.1
2002	16.7	15.9	2.0	1.9	10.5	9.8	3.3	3.2	1.0	0.9	2.3	2.2	9.9	9.4
2003	17.1	16.2	2.0	1.8	11.1	10.4	3.4	3.3	1.0	1.0	2.3	2.1	9.9	9.3
2004	16.4	15.6	1.8	1.7	11.0	10.3	3.3	3.2	1.0	1.0	2.4	2.3	9.3	8.8
2005	16.4	15.5	2.1	1.9	10.9	10.1	3.2	3.1	1.0	1.0	2.3	2.1	9.4	8.7
2006	17.5	16.4	2.5	2.3	10.7	10.0	3.1	3.0	0.9	0.8	1.9	1.8	8.6	7.8

NOTE: Age-adjusted figures use 1997 population shares for the following age categories: 25–29, 30–34, 35–39, 40–44, 45–49, 50–54, 55–59, and 60–61.

SOURCE: Authors' calculations using the 1997–2006 NHIS Sample Adult files.

to-trough comparisons. We can, however, compare the business cycle peak year of 1999 to the year 2006, during which the economy appears to have been close to a business cycle peak. During this period, the decline in the age-adjusted NHIS work-limitation measure was larger than the decline in the unadjusted measure. These findings are consistent with the findings based on the CPS. Interestingly, however, all of the other unadjusted disability measures *increased* during the period. The increases were reduced by age adjustment but not reversed. Thus, based on the NHIS, the decline in the prevalence of disabilities captured by the work-limitation questions does not extend to other measures of disability, even after adjusting for changes in the age distribution of the working-age population. The NHIS findings for disability measures other than work limitation are broadly consistent with the NHIS findings through 2004 reported by the IOM.

### **Prevalence Trends by Demographic Group**

The trends in the prevalence of work limitations within other demographic groups unadjusted for age (Table 3.7) are generally similar to the unadjusted aggregate trends we report in Table 3.5. Some interesting differences emerge, however. Comparing the business cycle troughs, the prevalence rate for women was eight percent lower than that for men in 1983, but it increased relative to the rate for men throughout the period and was only one percent lower by 2004. This trend likely reflects the growth of women in the labor force, which presumably increases their chance of reporting a condition limiting their ability to work. Hence, this increase may have had a positive effect on aggregate trends in the prevalence of work limitations throughout this period. The prevalence of work limitations among men did not change from 1993 to 2004; the increase in the aggregate prevalence rate between these recession troughs is entirely attributed to the increase for women. However, these series have not been adjusted for age. But because the age distributions for men and women changed together during this period, it is apparent that, relative to the aggregate age-adjusted series presented previously, the age-adjusted series for men would show larger declines in the prevalence of work limitations than the age-adjusted series for women.

**Table 3.7 Work Limitation Prevalence Rates (%) by Demographic Subpopulation, 1981–2007**

Survey year	Total	Sex		Race/ethnicity <sup>a</sup>			Education <sup>b</sup>			
		Men	Women	White	Black	Hispanic	Less than HS	High school	Some college	College or more
1981	7.9	8.2	7.6	7.3	13.7	7.0	16.3	6.6	5.3	2.9
1982	7.9	8.2	7.6	7.4	12.9	6.9	16.5	6.7	5.6	3.1
<b>1983</b>	<b>7.5</b>	<b>7.8</b>	<b>7.2</b>	<b>7.1</b>	<b>11.7</b>	<b>7.2</b>	<b>16.2</b>	<b>6.2</b>	<b>5.4</b>	<b>3.0</b>
1984	7.6	8.0	7.2	7.2	11.8	6.8	16.6	6.6	5.2	3.1
1985	7.8	8.2	7.5	7.2	13.2	8.1	17.3	7.0	5.6	2.9
1986	7.7	8.3	7.2	7.3	12.3	6.6	17.2	6.9	5.9	2.8
1987	7.7	8.2	7.2	7.2	12.4	7.1	17.7	7.0	5.3	2.8
1988	7.2	7.7	6.7	6.7	11.7	7.0	16.1	6.6	5.8	2.6
1989	7.2	7.6	6.9	6.9	11.1	6.3	16.9	6.7	5.5	2.6
1990	7.4	7.9	7.0	6.9	11.7	7.5	17.0	7.3	5.1	2.8
1991	7.5	7.7	7.2	6.9	11.9	7.3	16.8	7.4	5.6	3.0
1992	7.7	8.1	7.2	7.2	11.4	7.1	18.1	7.6	6.0	2.7
<b>1993</b>	<b>7.8</b>	<b>8.4</b>	<b>7.2</b>	<b>7.5</b>	<b>10.8</b>	<b>7.7</b>	<b>18.3</b>	<b>8.0</b>	<b>6.5</b>	<b>2.6</b>
1994	8.4	8.8	8.0	7.8	13.4	7.8	20.6	8.6	6.7	2.7
1995	8.3	8.5	8.2	7.7	13.4	7.8	19.3	9.1	6.9	3.0
1996	8.3	8.2	8.4	7.6	13.7	7.4	19.0	8.9	6.9	3.2

1997	8.3	8.3	8.4	7.8	13.3	7.0	18.7	8.9	7.3	3.2
1998	8.1	7.8	8.3	7.6	12.3	7.1	18.1	8.9	7.0	3.1
1999	7.9	8.0	7.9	7.4	12.9	7.2	17.3	9.0	7.1	3.1
2000	7.9	8.0	7.9	7.5	12.8	6.4	17.9	9.2	6.9	3.2
2001	7.8	7.7	8.0	7.5	12.3	6.1	17.6	9.3	7.1	2.9
2002	8.2	8.0	8.4	7.9	13.3	6.2	17.8	9.8	7.7	2.9
2003	7.8	7.6	7.9	7.3	13.2	6.2	16.5	9.6	7.2	2.9
<b>2004</b>	<b>8.4</b>	<b>8.4</b>	<b>8.3</b>	<b>8.1</b>	<b>13.5</b>	<b>6.2</b>	<b>17.6</b>	<b>10.1</b>	<b>8.0</b>	<b>3.3</b>
2005	8.4	8.4	8.5	8.2	13.1	6.5	17.5	10.3	7.7	3.4
2006	8.4	8.2	8.6	8.2	13.5	5.8	16.9	10.5	7.7	3.4
2007	8.0	7.7	8.3	8.0	11.8	5.7	15.7	10.2	7.6	3.2

NOTE: Persons in the Armed Forces are excluded. Years in bold are the trough years of the business cycle.

<sup>a</sup>White Hispanics and black Hispanics are coded as Hispanic.

<sup>b</sup>Beginning in survey year 1992, educational attainment questions in the CPS were changed to reflect credentials and degrees rather than grades (years) completed.

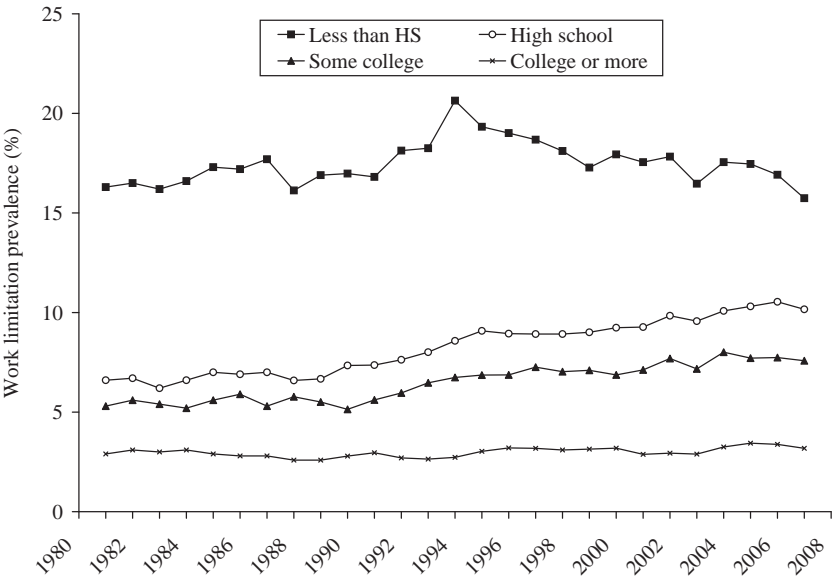
SOURCE: Authors' calculations using the March CPS for persons aged 25–61.



Although prevalence for blacks/African Americans is extraordinarily high relative to prevalence for whites, as we have already seen, it fluctuated during this period, from 66 percent higher in 1983 to 45 percent higher in 1993 and back to 66 percent higher in 2004. Prevalence also declined for Hispanics relative to whites, from 1 percent higher in 1983 to 23 percent lower in 2004.

Prevalence statistics by level of education are plotted in Figure 3.5. A 1992 change in the CPS educational attainment question—shifting emphasis from years of schooling toward attainment of a degree—means that statistics after that are not fully comparable with pre-1992 statistics. Nevertheless, this chart shows that work-limitation prevalence trends vary markedly by education level. There is a marked upward trend in prevalence for those who have completed high school and not college throughout the period, especially in the latter half. From 1993 to 2004, the prevalence rate for those with a high school degree increased

**Figure 3.5 Prevalence of Work Limitations by Level of Education, 1981–2007**



SOURCE: Calculations by the authors. See Table 3.7.

from 8.0 percent to 10.1 percent, and it increased for those with some college education from 6.5 percent to 8.0 percent. The prevalence trend was also upward for those with less than a high school education from 1983 to 1993, but it has been distinctly downward in more recent years, falling from 18.3 percent in 1993 to 17.6 percent in 2004. However, it is difficult to interpret these disparate trends because educational attainment varies across age cohorts, with more recent cohorts attaining higher levels of education. In other words, the age distribution varies across education groups (e.g., college graduates tend to be younger, on average, than those having less education), so the aging of the baby boomers is affecting these education groups differently. Even holding age constant, those within an education category during the latter part of the period differ in other important respects from those within the same category in the earlier part (e.g., a growing share of college graduates are female).

## SUMMARY AND CONCLUSION

Disability prevalence, measured in various ways and using an array of data sets, differs considerably across states and demographic groups. We find very large differences in prevalence across racial groups; blacks/African Americans and Native Americans have prevalence rates that are much higher than those of other groups. Prevalence declines substantially with educational attainment—those with less than a high school education have rates five to six times the size of those for college graduates. Prevalence also increases with age—for most disability measures, those aged 55–61 have prevalence rates that are three to four times higher than those aged 25–34.

Perhaps the most important finding is that, after adjusting for the aging of the baby boom cohort, the prevalence of work limitations increased between the recession troughs of 1983 and 1993, but it declined slightly from 1993 to the next trough in 2004. A decline in the recent period is clearly evident for those aged 55–61, and the decline appears to have started in the 1980s. It is also clear that, after adjusting for age, prevalence of work limitations for men declined substantially from

1993 to 2004. The prevalence of work limitations among women increased relative to men, perhaps because of increases in female labor force participation.

Consistent with earlier studies, however, we did not find recent declines in disability prevalence for measures other than work limitations, even after controlling for the aging of the baby boom cohort. We did not examine whether trends in these measures vary by demographic group.

These statistics raise many interesting questions for future research. An inquiry into the sources of the extreme variation in disability prevalence across states might be very fruitful. The advent of the ACS presents a new opportunity to conduct research in this area. Possible explanations for the variation across states include, at a minimum, variation in demographic characteristics, state economies, and public policies.

It would also be valuable to gain a better understanding of why disability prevalence among blacks/African Americans relative to that of whites declined from 1983 to 1993. One possible explanation is that gains in educational attainment and economic opportunities for blacks/African Americans have reduced the relative levels of disability prevalence in the working-age population. It is also possible that part of the decline could be an artifact of the CPS sampling frame, which excludes the incarcerated population. As She and Stapleton (2009) shows, the prevalence of disabilities is much higher among the incarcerated than the household population, and disproportionately large numbers of inmates are blacks/African Americans. Hence, as incarceration rates increased during this period, disproportionately large numbers of blacks/African Americans with disabilities were removed from the CPS sampling frame, which could be part of the reason why prevalence rates did not increase for blacks/African Americans as they did for whites.

The finding of a decline in the prevalence of work limitations since the early 1990s also merits additional research. A first step would be to produce and examine age-adjusted changes in prevalence within demographic groups. Such series might still show that the prevalence of work limitations has declined relative to the prevalence of other types of disabilities. If so, it would be valuable to gain a better understanding of why these series diverged. It would also be helpful to know why the age-adjusted prevalence of work limitations increased in the 1980s but

has since declined. Is there evidence linking prevalence to the expansion of eligibility criteria for SSDI after 1984 as suggested by Autor and Duggan (2003)? Did the 1990 Americans with Disabilities Act or the broader cultural changes underlying its enactment contribute to a decline in the reporting of work limitations among those with given impairments? Is there evidence that medical and technological advances during the 1990s—especially the rapid growth in the economic role of information technology—have reduced the chances that an individual with a given impairment will experience a work limitation?

Findings from the literature on trends in life expectancy also suggest an interesting direction for future research on disability prevalence. A recent review of this research by the Congressional Budget Office concluded that there are growing disparities in life expectancy across socioeconomic status (SES), even as the influence of race (at least for black women) declines (Manchester and Topoleski 2008). In brief, there is substantial evidence that, during the past few decades, life expectancy has been increasing substantially for those in relatively high SES groups, defined in various ways, while gains have been much more limited for relatively low SES groups. Some possible explanations for these findings are outlined in Manchester and Topoleski (2008) and include lifestyle factors such as smoking and obesity, and differential trends in access to health care, including access to new life-saving treatments. Research on life expectancy trends raises an interesting question about disability prevalence trends. Is it possible that disability prevalence is declining rapidly among high SES groups, while remaining high or even increasing for low SES groups? Perhaps reductions in smoking, the effects of medical and technological advances, and changes in the nature of the jobs held by those in high SES groups have substantially reduced the likelihood that they will experience disability onset while of working age. Those from lower SES groups might have experienced smaller reductions in disability, or even increases, because of smaller declines in smoking, relatively limited access to new medical technologies, declines in health insurance coverage, fewer benefits from advances in information technologies, and perhaps other factors. The variations in the work-limitation prevalence trends by educational attainment as reported in this chapter seem consistent with the hypoth-

esis of a growing disparity in disability prevalence across SES groups for working-age people, but they are far from definitive.

Increases in the disparity of disability across these groups could have profound consequences for public policies, with higher SES groups experiencing a decline in the need for social insurance against the onset of disability, even as the needs of lower SES groups remain high or even increase. Similarly, most of those in relatively high SES groups might be able to extend their labor force participation well past the current full retirement age for Social Security (now 66) in response to policy changes that encourage later retirement, whereas many of those from lower SES groups might find it very difficult to do so.

## Notes

1. Technological advances and changes to the environment may also play a role in decreasing disability rates among the elderly. Even if the risk of some disabilities may not have declined, the ability to cope with what once would have been thought of as a disabling condition might have changed. This idea is explored in Stewart et al. (2008), where they tested whether the availability of ramps, van transportation, and senior housing decreases self-reported measures of disability conditional on objective measures of functioning. Their work is mostly suggestive at this point, but they did find that increased use of van service may explain approximately 4 percent of the decline in disability grocery shopping among Boston-area elderly women from 1982 to 1999.
2. ADLs are defined as bathing, dressing, and getting around inside the home; IADLs are defined as shopping, cleaning, and going places outside the home. Both are considered predictors of long-term care needs.
3. These estimates were adjusted for sex, race, Hispanic origin, education, and employment.
4. The other states with self-reported work limitation rates below 6 percent are New Jersey, North Dakota, Minnesota, the District of Columbia, Hawaii, Utah, Maryland, Connecticut, Colorado, Illinois, Nebraska, Nevada, and Wisconsin.
5. Education is not technically a demographic characteristic, but since it is a largely static trait in the working-age population, we treat it as if it were.
6. The “go-outside-home” disability is the ACS IADL disability referred to by Weathers (2009).
7. The sampling frame was changed to reflect the most recent decennial census.
8. The dating of the employment, income, and poverty measures reported in Weathers and Wittenburg (2009); Burkhauser, Rovba, and Weathers (2009); and Burkhauser, Houtenville, and Rovba (2009) refers to the pre-survey year.
9. It is possible that changes in interview methodology could have contributed to

changes in prevalence during this period. This was a time of extensive innovation in the use of computer-assisted interviews, including, for example, the automated insertion of an individual's name into questions throughout the survey.

10. Weathers and Wittenburg (2009) provides evidence that these years are business cycle troughs. Although it is more common to make comparisons across business cycle peaks than across troughs, we chose to examine troughs throughout this book because only two peaks occurred from 1980 through 2006.
11. Although the business cycle peak prior to the 1983 trough is not observed in the data, if a recession induces an increase in measured prevalence, we would expect to see an increase from 1981 to 1983. Only the one-period CPS measure is available for that period, and it shows a decline. This seemingly contradictory evidence might, however, reflect the fact that SSDI awards did not increase during this period, despite the recession, because of administrative tightening of SSDI eligibility rules (Rupp and Stapleton 1995).
12. The eight age categories used are 25–29, 30–34, 35–39, 40–44, 45–49, 50–54, 55–59, and 60–61.

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2009

W.E. Upjohn Institute for Employment Research  
Kalamazoo, Michigan

**Library of Congress Cataloging-in-Publication Data**

Counting working-age people with disabilities : what current data tell us and options for improvement / Andrew J. Houtenville . . . [et al.], editors.

p. cm.

Includes bibliographical references and index.

ISBN-13: 978-0-88099-346-3 (pbk : alk. paper)

ISBN-10: 0-88099-346-4 (pbk : alk. paper)

ISBN-13: 978-0-88099-347-0 (hardcover : alk. paper)

ISBN-10: 0-88099-347-2 (hardcover : alk. paper)

1. People with disabilities—Employment—United States—Statistics. 2. People with disabilities—United States—Social conditions—Statistics. I. Houtenville, Andrew J.

HD7256.U5C68 2009

331.5'90973—dc22

2008052064

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Kalamazoo, Michigan 49007-4686

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Cover design by Alcorn Publication Design.

Index prepared by Nancy Humphreys.

Printed in the United States of America.

Printed on recycled paper.