

# AGING INTO DISABILITY BEYOND 50: THE IMPACT ON LABOR FORCE PARTICIPATION AND EARNINGS

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## ABSTRACT

*Purpose* – This study<sup>1</sup> examined the relationship between chronic conditions, disabilities, and labor force participation (LFP) and earnings for those aged 50 and above.

*Design/methodology/approach* – Using the 2008 American Community Survey (ACS), we analyzed LFP rates and earnings among disabled and nondisabled older Americans by type of disability. The analysis included both descriptive statistics and a two-staged multivariate analysis.

*Findings* – We found that disabilities had a negative impact on LFP and earnings and that this impact varied significantly by type of disability. Older labor force participants often have only one of the six ACS-defined disabilities, but many have multiple disabilities, or co-occurrences. The particular ACS disability, or set of disabilities, is likely to have different

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**Disability and Intersecting Statuses**

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*effects on LFP as people age. Additionally, certain kinds of chronic medical conditions increase the likelihood of disability co-occurrence.*

*Originality/value – Our results inform the development of programs and policies aimed at improving the health of American workers in ways that extend the years in which they are able to remain in the labor force. For example, if older workers remain in the labor force, their economic contribution to the American economy, combined with a lower rate of reliance on public health subsidies, may result in significant cost savings.*

**Keywords:** Disability; aging; labor force participation; earnings

## INTRODUCTION

The purpose of this analysis is to quantify the relationship between age and the prevalence of disabilities, and to show how certain types of disabilities and their combinations exact an elevated toll on labor force participation (LFP) rates and earnings, curtailing the ability of older disabled Americans to remain in the labor force.

## BACKGROUND

All things being equal, age is the most important predictor of LFP, as older workers are more likely to leave the labor market than younger workers (Mitchell, Adkins, & Kemp, 2006; Rigg, 2005). The reasons why they leave are linked to the onset of disability, in addition to a variety of health, social, and economic factors, including long-term chronic health conditions, work history, and the dynamics of income, educational attainment, gender, race/ethnicity, and fluctuations in the labor market (Crimmins, Reynolds, & Saito, 1999; Mitchell et al., 2006). The types of chronic health conditions also affect LFP, as people with cerebral palsy, spinal cord injury, or rheumatoid arthritis, for example, have much higher LFP rates than those with visual impairments or intellectual disabilities. Additionally, LFP rates decrease precipitously after the onset of a more debilitating disability caused in part by a chronic health condition (Mitchell et al., 2006; Young et al., 2002). Chronic health conditions also have been linked to reductions in household income and job skill development, increases in

the likelihood of poverty, and limitations in human capital (Loprest & Maag, 2009).<sup>2</sup>

Approximately 20 million working-age people in the United States with sensory, physical, and/or cognitive disabilities (Houtenville & Ruiz, 2012) are at a disadvantage in terms of their LFP rates and annual earnings when compared with the working-age population without disability. The median income of families with at least one member with a disability is about 72 percent of the national median income, while median incomes for families with at least one member with a mental or physical disability are 66 percent and 68 percent, respectively, of the national mean (Disability Statistics & Demographics, Rehabilitation Research & Training Center, 2012).

Many older workers, due to their financial constraints, do not retire at age 62 or 65. Unfortunately, as they age into disability, some of these individuals are forced to exit the labor market due to limitations in their functional ability to perform certain job tasks (Hayward, Friedman, & Chen, 1998; Novak & Campbell, 2006). Due to lack of savings and assets, dramatic swings in the financial markets, and the cost of health care, many older workers see employment as a necessity, but the onset of disability at a post-retirement age leads to significant losses in earnings and LFP rates. In the last 20 years, the decline in LFP among people with disabilities and the slight increase in LFP among 50- to 65-year-olds are causes for concern given demographic trends that foretell a rapid increase in the number of older labor force participants and concerns about their functional capacity and health care needs (Rigg, 2005; Yelin & Katz, 1994).

## METHODS

This analysis is based on the six disability questions in the 2008 *American Community Survey* (ACS). Prior to 2003, information on disabilities in the ACS was limited to two questions:

1. Does this person have any of the following long-lasting conditions:
  - a. Blindness, deafness, or a severe vision or hearing impairment;
  - b. A condition that substantially limits one or more basic physical activities such as walking, climbing stairs, reaching, lifting, or carrying?
2. Because of a physical, mental, or emotional condition lasting 6 months or more, does this person have any difficulty in doing any of the following activities:
  - a. Learning, remembering, or concentrating;

- b. Dressing, bathing, or getting around inside the home;
- c. Going outside the home alone to shop or visit a doctor's office;
- d. Working at a job or business?

Beginning in 2008, the U.S. Bureau of Labor Statistics and the Office of Disability Employment Policy have collaborated on an effort to collect more specific information that would allow researchers to examine six types of disabilities (U.S. Census Bureau, n.d.). The 2008 questions focus on the impact of certain conditions on basic functioning rather than on their presence. An interagency group was formed to develop a new set of questions, which is more in line with modern definitions of disability. For this study, attention is focused on ages 50 through 80, as these are the years in which most Americans age into disabilities.

### SIX DISABILITY QUESTIONS: 2008 ACS

1. *Hearing*: "Is this person deaf or does he/she have serious difficulty hearing?"
2. *Sight*: "Is this person blind or does he/she have serious difficulty seeing even when wearing glasses?"
3. *Memory*: "Because of a physical, mental, or emotional condition, does this person have serious difficulty concentrating, remembering, or making decisions?"
4. *Mobility*: "Does this person have serious difficulty walking or climbing stairs?"
5. *Dressing*: "Does this person have difficulty dressing or bathing?"
6. *Social functioning*: "Because of a physical, mental, or emotional condition, does this person have difficulty doing errands alone such as visiting a doctor's office or shopping?"

Our approach included both descriptive statistics and a two-staged multivariate analysis. These techniques were applied to both LFP rates and earnings. In the first stage of the multivariate analysis, we estimated models relating LFP rates and earnings to age, gender, race/ethnicity, and education level for those who reported no disabilities. We then applied these models to those who did report disabilities to predict what their LFP rates and earnings would be if they were not disabled based upon their age, gender, race/ethnicity, and education level. In the second stage, we estimated the extent to which individual disabilities, and combinations of disabilities,

reduced LFP rates and earnings below what would be expected in the absence of disabilities.

## RESULTS

We will first examine the LFP rates among older Americans without disabilities compared to those with disabilities. Then, for the older Americans who remain employed, we will compare the earnings of those with disabilities to those without disabilities.

### *Labor Force Participation*

Older labor force participants often have only one of the six ACS-defined disabilities, but many have multiple disabilities, or *co-occurrences*. The particular ACS disability, or set of disabilities, is likely to have different effects on LFP as people age. Additionally, certain kinds of chronic medical conditions increase the likelihood of disability co-occurrence. For example, depression often co-occurs with musculoskeletal problems (Reiger et al., 1998), which further impairs the ability of a worker to remain in the labor force.

Table 1 displays the 13 most frequent combinations of ACS disabilities, which account for nearly 80 percent of those with disabilities in the population under study. For each combination, the average LFP rate is computed for those aged 50–60 and compared with the average LFP rate for people without disabilities in this same age range. The analysis does not control for personal characteristics or demographics. More than 20 percent of people with disabilities aged 50–80 (about 4.1 million people) have difficulty walking as their only disability. Table 1 shows that the average LFP rate for individuals aged 50–60 in this disability category is 47 percent, while for nondisabled people (aged 50–60) the average LFP rate is 82 percent. The ratio is .58, which implies that a walking disability, appearing alone, reduces LFP to .58 of what it would be without any disability.

The second most frequent category, accounting for almost 16 percent of people with disabilities, consists of those with difficulty hearing but no other disabilities. The LFP rate for this group is 80 percent, which is nearly equal to the rate of 82 percent for nondisabled people. Thus a disability

**Table 1.** Most Frequent Disability Combinations (Ages 50–80) and LFP Rates (Ages 50–60).

Disability Combination	Population Counts Age 50–80	Percentage of Age 50–80 Disabled Population	Average LFP Rate Age 50–60	LFP Rate Ratio to Nondisabled
Walk	4,169,225	22.1	0.47	0.58
Hear	2,933,045	15.6	0.80	0.98
Errands/walk	1,117,485	5.9	0.20	0.24
Dress/errands/walk	1,058,378	5.6	0.16	0.19
Dress/errands/walk/ remember	927,644	4.9	0.10	0.12
Remember	890,007	4.7	0.42	0.51
See	854,447	4.5	0.67	0.82
Hear/walk	582,264	3.1	0.48	0.59
Errands	520,735	2.8	0.33	0.40
Errands/remember	491,971	2.6	0.19	0.23
Walk/remember	482,148	2.6	0.27	0.32
Errands/walk/ remember	439,877	2.3	0.13	0.16
Dress/walk	377,068	2.0	0.30	0.36
Other	3,994,295	21.2	0.28	0.34
No disability	65,300,335		0.82	1.00
Total population age 50–80	84,138,924			

Source: 2008 American Community Survey.

associated with hearing, when appearing alone, has minimal impact on LFP.

Third on the list are those who have difficulty walking and doing errands but have no other disabilities. About 6 percent of people with disabilities fall into this category, and their LFP rate is only 20 percent. This is about .24 of the LFP rate for people without a disability and suggests that this particular combination of disabilities reduces LFP to about one-quarter of what it would be in the absence of disability. Note that people whose only disability is related to errands are ninth on the list. They have an LFP rate of 33 percent, which is .40 of the rate for people with no disability.

An important observation is that the reduction in LFP due to difficulty with both walking and errands (.24) is nearly identical to the product of the reduction due to walking alone (.58) and the reduction due to errands alone (.40). This rough rule of thumb for calculating ratios works quite well for

other pairs of disabilities shown in the table. It even comes close when looking at a combination of three disabilities. The LFP ratio for people in the errands/walk/remember category is .16, while the product of the ratios for each component is  $.40 \times .58 \times .51 = .12$ . This would be expected if the effects of each type of disability on LFP were statistically independent of one another.

Fig. 1 displays the LFP rate by age for the three most common disabilities, as well as for people with no disability and people with at least one disability. The LFP rate for people with only a hearing problem is almost identical to the rate for those with no disability across all ages. Those whose only problem is walking have much lower LFP rates at all ages, but these are still slightly above the overall average for people with at least one disability. Finally, those with difficulties in both walking and doing errands have much lower LFP rates across all ages.

Of interest here is that the LFP ratio (i.e., the LFP ratio of disabled (the broken line) versus non-disabled workers (the solid line) in the labor force) across all ages from 50 to 80 remains fairly stable and hovers somewhere around 0.50–0.55. In other words, regardless of age, this ratio is maintained even though the prevalence of disability, of course, increases with age.

Summary results of the multivariate analysis are presented in Fig. 2, which focuses on each of the six disabilities appearing alone.<sup>3</sup> As noted above, the impact of combinations of disabilities can be approximated as the product of each individual impact. The figure shows that difficulties

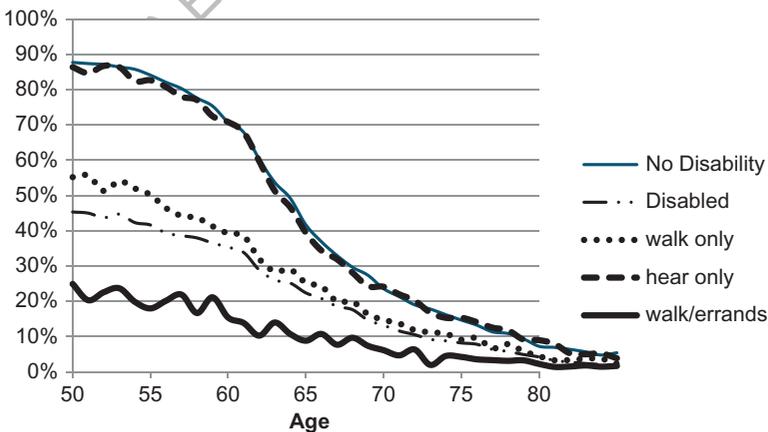


Fig. 1. LFP by Age and Disability. Source: 2008 American Community Survey.

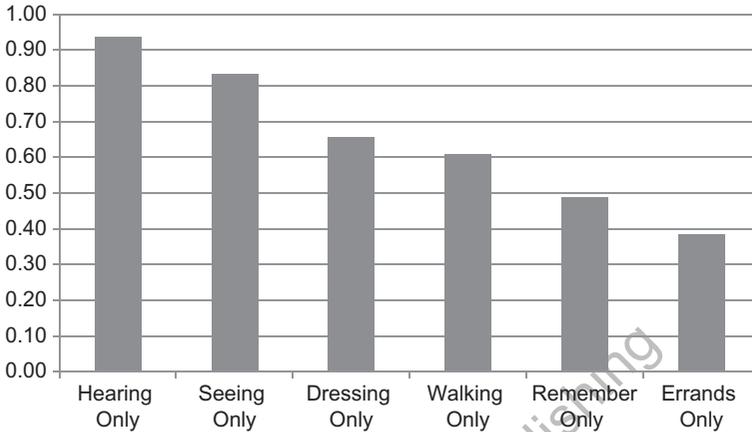


Fig. 2. LFP Ratio to Non-Disabled for Individual Disabilities, Ages 50–80.  
 Source: Nonlinear regression results using 2008 American Community Survey.

with hearing and seeing have the smallest effect on LFP rates; LFP ratios for people with these disabilities (LFP rate for people with the disability/LFP rate for people with no disability) are 92 percent and 82 percent, respectively. The LFP ratios for difficulty dressing (64 percent), walking (60 percent), remembering (49 percent), or running errands (39 percent) are much lower by comparison.

### *Disability and Earnings*

Aging into disability affects overall earnings by (1) reducing the likelihood of employment and (2) reducing annual earnings for those who are employed. Fig. 3 displays the employment rates for disabled and nondisabled individuals by age.<sup>4</sup> Employment rates for both groups decline steadily with age, but the employment rate for the nondisabled is roughly twice that of the disabled across all ages.

In Fig. 4, annual earnings, in thousands of dollars, are plotted against the left-hand vertical axis, while the ratio of disabled earnings to nondisabled earnings is plotted against the right-hand vertical axis. Between ages 50 and 60, annual earnings for people with disabilities are about two-thirds of the earnings of people without disabilities. The earnings ratio increases

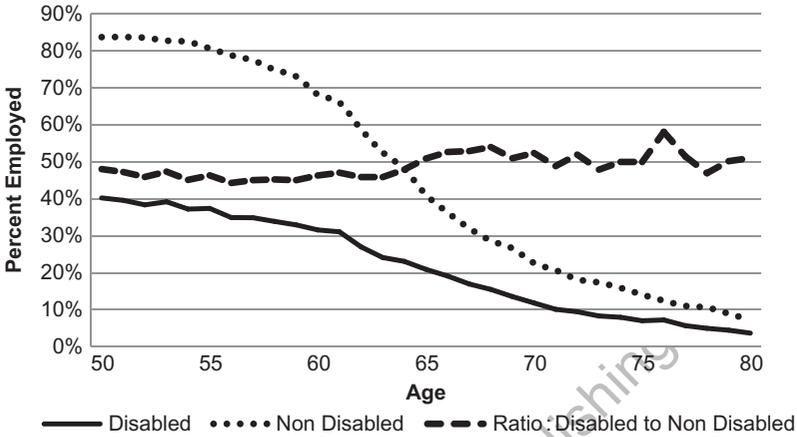


Fig. 3. Disability and Employment Rates. *Source:* 2008 American Community Survey.

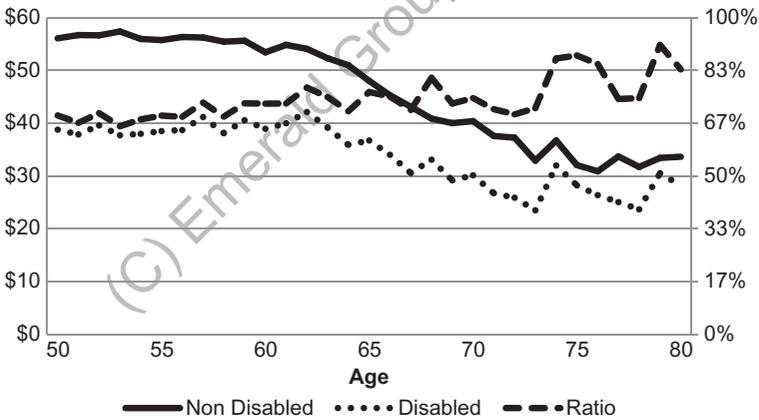


Fig. 4. Annual Earnings by Age (dollars in thousands). *Source:* 2008 American Community Survey.

slightly with age until about age 75, when the earnings of employed people with disabilities are about 80 percent of their nondisabled counterparts.

Table 2 shows, for employed persons between the ages of 50 and 60, that the 9 most prevalent combinations of disabilities account for nearly 80 percent of those with disabilities. For each combination, the annual earning

**Table 2.** Most Frequent Disability Combinations with Average Earnings and Earnings Ratios for Employed Persons Ages 50–60.<sup>a</sup>

Disability Combination	Employed Population	Percentage Disabled Population	Average Earnings	Earnings Ratio to Non-Disabled
Walk	686,551	26.7	\$36,258	0.65
Hear	664,641	25.8	\$50,404	0.90
See	266,085	10.3	\$40,333	0.72
Remember	198,230	7.7	\$31,618	0.56
See/walk	65,295	2.5	\$34,138	0.61
Walk/remember	58,553	2.3	\$28,977	0.52
Hear/walk	57,840	2.2	\$41,023	0.73
Errands	55,711	2.2	\$37,464	0.67
Dress/errands/walk	52,100	2.0	\$35,939	0.64
Other	467,297	18.2	\$30,674	0.55
No disability	29,029,916		\$56,075	1.00
Total population age 50–60	31,602,219			

<sup>a</sup>The analysis does not control for personal characteristics/demographics.

Source: 2008 American Community Survey.

average is computed and compared with the average for the nondisabled in this same age range. Average earnings among employed 50- to 60-year-olds with no disabilities are about 56 thousand dollars per year.

People with disabilities earn less than those without, and the differential depends on the particular disability or disabilities that apply. If the only disability is hearing, earnings are 90 percent of what a person without a disability earns. If the only problem is remembering, this figure falls to 56 percent. Having more than one disability typically results in earnings that are even lower than when the disabilities appear alone. However, for the common combinations shown in Table 2, the effect of multiple disabilities on earnings is not approximated by the product of the individual ratios as it was for LFP rates (Table 1). For example, those with difficulty dressing, doing errands, and walking have roughly the same earnings as those whose only difficulty is walking.

Results from the multivariate analysis are summarized in Fig. 5, focusing on the earning ratios for the six disability categories of the ACS after controlling for age, gender, race/ethnicity, education, and marital status.<sup>5</sup> The ratios show the annual earnings of workers with disabilities relative to those without for each category of disability when it appears alone. The results suggest that earnings ratios are less sensitive to type of disability

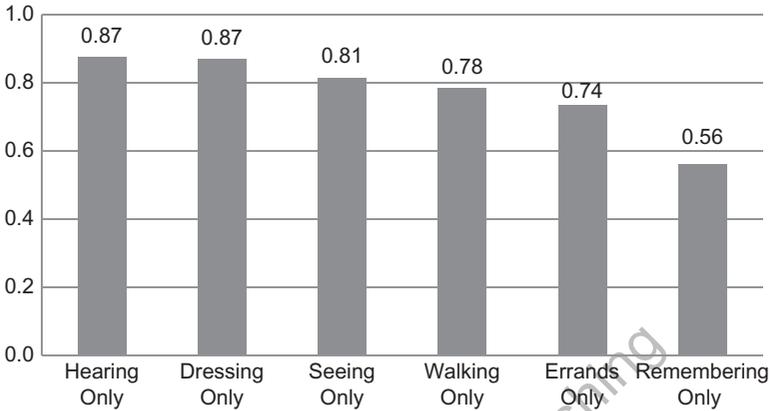


Fig. 5. Annual Earnings of People with Disabilities as a Ratio to Earnings of People without Disabilities, for Individual Disabilities. *Source:* Nonlinear regression results, using 2008 American Community Survey.

than was found for labor LFP rates (see Fig. 2). Earnings are reduced the most by difficulty remembering (.56 ratio). Reductions from other disabilities range from .87 for difficulty hearing or dressing to .74 for difficulty doing errands.

Results of this multivariate analysis confirm the findings presented in Table 2 showing that the combined effect of multiple disabilities on earnings is not much greater than the largest individual effect. This may be because the earning results refer only to those who are employed. Thus, having multiple disabilities makes it significantly more difficult to find employment, but has a relatively small impact on earnings for those who do find employment.

## CONCLUSION

This chapter examines the differential effects of specific disabilities, and of their combinations, on LFP rates among older Americans, and the effects of disabilities on earnings for those who remain employed. Findings indicate that the average LFP rate for individuals with disabilities aged 50–60 is 47 percent, while for nondisabled people (aged 50–60) the average LFP rate is 82 percent. Furthermore, combinations of disabilities result in roughly the

same ratio as found with individual disabilities. For example, the reduction in LFP due to difficulty with both walking and errands (.24) is nearly identical to the product of the reduction due to walking alone (.58) and the reduction due to errands alone (.40). Aging into disability also affects overall earnings by reducing the likelihood of employment and annual earnings for those who are employed. These findings ultimately demonstrate that disability affects LFP and, among the employed, reduces earned income. Based on these findings, the economic impact of disability on employment could broadly affect the individual due to potential health care costs related to disability, as well as the economic landscape in general.

If older workers remain in the labor force, their economic contribution to the American economy, combined with a lower rate of reliance on public health subsidies, may result in significant cost savings. Because the LFP rates of those at or above the age of 65 are low relative to those below the age of 65, older worker policies and government resources should target those at retirement age who wish to remain employed by mitigating the effects of disability and employment discrimination on both LFP rates and earnings (Neumark, 2008). According to Neumark (2008), since its inception, the Age Discrimination in Employment Act of 1967 (ADEA) has focused primarily on wrongful termination and discriminatory hiring practices rather than on the employment of older workers. A focus on the continued employment of older workers of retirement age and access to “bridge jobs”<sup>6</sup> would help these workers remain in the labor force, reduce their reliance on public subsidies, and allow them to be more economically independent and viable (Gustman & Steinmeier, 2000).

The existing national policy framework is limited in its support for middle-class workers because existing employment programs and related health programs – such as the Medicaid Buy-in Program for Working People with Disabilities, Ticket to Work, the Temporary Assistance for Needy Families (TANF) wage subsidy program of the American Recovery and Reinvestment Act of 2009, and the Senior Community Service Employment Program (SCSEP) – are all designed to meet the needs of low-income workers. This is a key concern because lack of support for the middle class has a disproportionate effect on older labor force participants since more of them earn middle-class incomes than those below 50 years of age.

A related concern is the use of retirement incentives that facilitate the transition of older workers from the labor force to unemployment through retirement. These incentives facilitate the transition to retirement through payouts and pensions and have the intended effect of reducing the number of retirement-age workers in the labor force. Under current retirement patterns, the increase in disability prevalence beyond age 50 results in a loss of

2 million years of LFP and 120 billion dollars in earnings. These effects become even larger when the normal retirement age is extended, as individuals are therefore more likely to be in the labor force when disability occurs (Roehrig, Klayman, & Robinson, 2010).

The ability to work after the traditional retirement age is due in part to the enforcement of the Americans with Disabilities Act of 1990 and the ADEA, which protect the civil rights of people with disabilities and older workers. While this legislation regulates some of the tangible problems of the labor market, employment and earnings data and studies on employer hiring practices (Klayman & Mochel, 2009) provide clear evidence that regulatory policies have not resulted in a labor market that offers equal access to people with disabilities relative to those without disabilities.

## **ABOUT SOCIAL DYNAMICS, LLC AND ALTARUM INSTITUTE**

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## **NOTES**

1. Social Dynamics, LLC and Altarum Institute, under contract with the U.S. Department of Labor's Office of Disability Employment Policy, conducted a study on *Aging into Disability in the Workforce* in 2010.

2. Another degree of complexity is caused by the potential for endogeneity bias, which occurs when disability prevalence is not independent of unobserved factors. Stern's (1989) use of "symptoms" or diseases diagnosed by medical professionals rather than self-reports of the existence of disability have been shown to more accurately identify people with disabilities.

3. This analysis involved multiple steps. First, we used logistic regression to derive the relationship between LFP and individual characteristics including age, gender, marital status, education, and race/ethnicity for the sample of individuals without any disability. In the second stage, we applied this model to each individual in the disabled population to generate a predicted value for what their LFP rate would be if they were not disabled given their age, gender, marital status, education, and race/ethnicity. Finally, we estimated a nonlinear regression model in which the expected LFP rate for disabled individuals is equal to the predicted rate in the absence of disabilities adjusted downward by an amount depending upon the combination of disabilities present. The dependent variable in this regression was a binary indicator of LFP. The right-hand side of the equation was the predicted LFP rate in the absence of disability multiplied by a series of disability indicators whose coefficients measure the extent to which they reduce the LFP rate.

4. These employment rates are similar to the LFP rates, but differ due to those in the labor force who are unemployed. These are people seeking employment but are currently not working, and are not included in employment rates.

5. This analysis involved multiple steps. First, we used least squares regression to derive the relationship between earnings and individual characteristics including age, gender, marital status, education, and race/ethnicity for the sample of employed individuals without any disability. In the second stage, we applied this model to each employed individual in the disabled population to generate a predicted value for what earnings would be if they were not disabled given their age, gender, marital status, education, and race/ethnicity. Finally, we estimated a nonlinear regression model in which actual earnings for employed disabled individuals are equal to the predicted earnings in the absence of disabilities adjusted downward by an amount depending upon the combination of disabilities present. The dependent variable in this regression was actual earnings. The right-hand side of the equation was predicted earnings in the absence of disability multiplied by a series of disability indicators whose coefficients measure the extent to which they reduce earnings.

6. A bridge job is a part-time employment following retirement or a short-term job following lay-off from a full-time job.

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position or policy of the U.S. Department of Labor nor does mention of trade names, commercial products, or organizations imply the endorsement of the U.S. Department of Labor.

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