Changing Demographic Trends that Affect the Workplace and Implications for People with Disabilities

Volume I: Literature Review and Gaps Analysis

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Volume I: Literature Review and Gaps Analysis

Office of Disability Employment Policy
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Part One: Assessment of Existing Research and Data

I. Executive Summary

The purpose of this report was to conduct a meta and gap analysis of statistical research into changing demographic, workplace, and workforce trends that affect the employment of people with disabilities, synthesizing the existing literature and identifying areas for future research. This research project intended to use meta and gap analysis methodologies that would require systematic identification and analyses of diverse sources of information on the subject. However, given the nature of available studies and the limitations of the data, a meta-analysis was not practical as initially planned. Most major surveys had not been designed to assess disability itself until recently. Consequently, data sufficient for comparisons across surveys and studies did not exist for a meta-analysis to be conducted. Instead, a gap analysis of existing literature is presented in Volume 1, augmented by new analysis of data from the CPS and SIPP as presented in Volume 2.

Our report is organized into two volumes:

1. Volume 1—Literature Review and Gap Analysis
   - Part 1—Assessment of Existing Research and Data
   - Part 2—Proposed Research Design Plan

2. Volume 2—Meta Analysis Quantitative Summary

Volume 1—Literature Review and Gap Analysis

Volume 1, Part 1, reports on this study’s examination of existing research and data concerning the measurement of disability, changing disability trends, and changing employment outcomes for people with disabilities in the United States. Part 2 reports on research gaps and recommendations for research that would close those gaps and provide the information and insights needed to support policy in the coming years.

Part 1—Assessment of Existing Research and Data

Disability Data and Definitions

Existing research has relied upon a number of different data sources to attempt to measure the incidence of disability and employment outcomes in the US. Primary data sources identified in this report include:

- Decennial census
- American Community Survey (ACS)
- Survey of Income and Program Participation (SIPP)
- Current Population Survey (CPS)
- CPS March Supplement
- Job Openings And Labor Turnover Survey (JOLTS)
National Health Interview Survey (NHIS)

It is key to note that measuring the incidence of disability has not been a focus or goal of many of these surveys. Researchers use certain survey items as indicators of disability, but often those items were designed as steering questions for the survey rather than as explicit measures of disability. Moreover, researchers often have a choice of how to use survey information to indicate disability. The most commonly used data source, the CPS, has a series of items that can be used to indicate disability or severe disability. The key item, however, asks whether the respondent has a disability that affects the ability to work. Despite the fact that this item is tautological in nature, it is nonetheless often used by researchers. It is not surprising, therefore, that employment outcomes are closely correlated with the incidence of that measure of disability.

Table I-1 summarizes the different disability definitions used by major surveys.

Table I-1. Description of Disability Definitions Used by Major Surveys

<table>
<thead>
<tr>
<th>Survey</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decennial Census</td>
<td>Uses several questions to identify those for whom a sensory, physical, mental, or emotional condition affected any of the following life activities: learning, remembering, or concentrating; dressing, bathing, or getting around the house; going outside the home alone to shop or visit a doctor’s office; and working at a job or business.</td>
</tr>
<tr>
<td>American Community Survey (ACS)</td>
<td>Based on the decennial Census, uses six questions to identify “long-lasting health condition associated with disability,” along with conditions that cause activity limitations, interfere with daily living, or affect employment.</td>
</tr>
<tr>
<td>Current Population Survey (CPS)</td>
<td>Uses several questions to identify those for whom health has interfered with employment in some way. Additional questions to specifically identify disability were added in June, 2008.</td>
</tr>
<tr>
<td>CPS March Supplement</td>
<td>Identifies characteristics that limit work activities, either by preventing employment or limiting the option for employment.</td>
</tr>
<tr>
<td>Survey of Income and Program Participation (SIPP)</td>
<td>Uses multiple questions to “capture limits in functional activities (for example, seeing, hearing, and speaking); activities of daily living (such as getting around the home, getting in and out of bed, and eating); instrumental activities of daily living (for instance, going outside of the home, keeping track of money, and preparing meals); the use of assistive devices; the presence of conditions related to mental functioning; and the presence of a work disability.”</td>
</tr>
<tr>
<td>National Health Interview Survey (NHIS)</td>
<td>Uses multiple questions to identify respondents with “major” or “non-major” activities associated with their age group. For the working-age population, major activities include those associated with employment and daily living.</td>
</tr>
</tbody>
</table>

It is important to also note that six new items were added to the CPS in 2008. These new questions were first developed for the American Community Survey (ACS), and were

---

subsequently modified for inclusion in the CPS.² Our literature review suggests that disability rates derived using those new survey items will be substantially higher than rates derived using the older measures, and will be more in line with rates derived from the other surveys that attempt to measure disability other than as it affects employment.

Our examination of the literature found a large gap between the incidence of disability that affects work and of disability overall. Overall disability levels as reported in studies that use the SIPP and the ACS are about fifty percent higher than the levels derived from CPS data, reflecting the fact that the main pre-2008 CPS disability indicator is based on disabilities that limit work.

**Demographic Trends and Disability**

In comparing research studies, we found some agreement about the direction of trends for time periods covered when using different data sources. However, there was considerable variation in the incidence of disability depending on which data sources and definitions were being used. Furthermore, we found that a number of trends identified in the early and mid-1990s did not continue unambiguously through 2008. There have been ups and downs, which suggests that there has not been a clear or unitary direction. Whether these variations were due to changes in the overall economy, changes in the job market for people with disabilities, changes in the legal climate, changes in resources and programs available to people with disabilities, or broader social and demographic changes, requires research of a different nature to isolate and identify potential causal factors.

While some demographic factors’ relationships with the incidence of disability might seem intuitively obvious, it is nonetheless useful and important to lay them out. The studies we identified have found that:

- Disability incidence is closely related to age; using ACS data, a 2007 status report found that the incidence of disability for people over age 64 was more than twice that for people between 21 and 64.
- The population is aging; the proportion of the population over age 45 is expected to grow from about 17 percent in 2010 to about 27 percent in 2050.
- Coupling the aging of the population with the higher incidence of disability for older Americans, overall disability rates are projected to increase dramatically over the next 40 years.
- Controlling for age, studies agree that women experience disability at higher rates than men. As the female proportion of the workforce increases, this demographic fact will contribute to an increasing proportion of the workforce with disabilities.
- Studies agree that disability rates vary considerably by ethnic group. However, there are a number of very complex changes occurring, largely due to immigration, differential birth rates, increased utilization of Medicare and Medicaid, and differing life

expectancies. It is therefore not clear what role the changing ethnic composition of the US will have on the future incidence of disability

- Studies agree that disability incidence is related to income and earnings. A number of intertwined relationships, however, make it somewhat difficult to sort out cause and effect. People with lower incomes generally have less access to medical care, particularly with respect to prevention and early intervention, which can mitigate the employment effects of disability. On the other hand, having a disability is associated with lower earnings due to decreased ability to work, prejudice, and other factors.

- Studies agree that education is related to disability incidence; average educational attainment is lower for people with disabilities, and the incidence of disability is correspondingly higher among people with less education. What is not known for certain is the causal direction of these trends. Does lower education have a series of effects that reduce income and thereby access to health care that might mitigate or prevent disability? Or does disability interfere with the ability to get an education? Or, are both part of a circular path of causation?

**Disability and Employment Outcome Trends**

Studies largely focus on four employment-related outcomes:

- Labor force participation rate: the percentage of the working age population that is either working or actively seeking work
- Employment rate: the percentage of the labor force that is employed (this is the complement of the unemployment rate and is useful for contrasting with the labor force participation rate)
- Weeks worked: average number of weeks worked per year for employed individuals
- Weekly earnings: average weekly earnings for employed individuals

Studies have found:

- Labor force participation rates, as expected, are lower for people with disabilities. Furthermore, after a recession, while labor force participation rates increase for people without disabilities, they recover much more slowly for people with disabilities. Labor force participation rates on the whole have been declining for people with severe disabilities since the early 1990s.

- While more research needs to be done with later data, among people in the labor force, employment rates for people with disabilities have by and large been increasing slightly since the early 1990s. One possible reason is that people with work limitations have been leaving the labor force. Another possible reason is increasing accommodation and assistive technology.

- Average weeks worked for people with disabilities was increasing slightly during the early 1990s. However, only one study focusing on this was found, and additional study is needed.

- People with disabilities earn less than people without disabilities, even conditioning this on employment. We did not identify any studies that focused on trends.
Demand for Workers with Disabilities

Very little empirical work has been done in this area. A 2009 Monthly Labor Review article by Kruse and Schur matched BLS occupational projections for 2006-2016 to Census data on disability prevalence and O*Net data on job ability requirements. They used this to estimate, first, the expected employment rate of individuals with disabilities if current trends hold true, and second, the potential for increased job growth for those with disabilities based on the ability requirements of different kinds of jobs.\(^3\)

The authors projected people with disabilities to have lower job growth rates than the population of people without disabilities because people with disabilities are not distributed proportionately across the workforce, being underrepresented in faster-growing occupations. Coupling this with findings from other studies, it is likely that this trend is due in part to educational differences.

Other research, however, shows that employers typically underestimate the amount of assistance available to them for hiring and training of workers with disabilities, while at the same time overestimating negative impacts and effects of hiring workers with disabilities. Research suggests that there is considerable room for growth in opportunities for people with disabilities through employer education about the productivity of people with disabilities as well as about programs and assistance available.

Part 2—Proposed Research Design Plan

Our examination of existing research and data resulted in recommending several short and long-term research studies. These studies would fill gaps, extend research, and provide researchers and policy workers with the needed tools to better understand the effects of disability on employment, and meet policy needs to deal with projected changes in the supply and demand for labor, with respect to disability.

Table I-2 provides a list of our recommendations for research by duration and topic. In order to provide a plan that serves the practical needs of ODEP and the broader research community, a distinction is made between short- and long-term projects. Short-term projects are primarily efforts for which the necessary data already exists, or that do not require data analysis, which can therefore be completed in the immediate future. Longer term projects are those requiring more substantial data-gathering efforts or the development of new survey tools, which can therefore require time frames of up to several years for completion.

Volume 2—Meta Analysis Quantitative Summary

Volume 2 provides a quantitative overview of the data on demographic and employment trends in the population with disabilities. At the same time, a comparison of the SIPP and CPS data shows a number of points of departure that could lead researchers to differing conclusions depending on which data they study.

\(^3\) Kruse and Schur, “Projecting Potential Demand” (2009), 3-5.
Table I-2. Research Proposals by Duration and Topic Heading

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Duration</th>
<th>Type of Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition of Disability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A Comprehensive Approach to Defining Disability</td>
<td>Short-term</td>
<td>Consensus building</td>
</tr>
<tr>
<td>Employment Trends</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Update EconSys Employment Trends Study</td>
<td>Short-term</td>
<td>Update existing study</td>
</tr>
<tr>
<td>Federal Employment of Veterans with Disabilities</td>
<td>Short-term</td>
<td>Update Existing Reports</td>
</tr>
<tr>
<td>Employment in the Federal Government</td>
<td>Short-term</td>
<td>Data Analysis</td>
</tr>
<tr>
<td>Factors Affecting Employment Outcomes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>National Employment Survey</td>
<td>Long-term</td>
<td>Data Analysis</td>
</tr>
<tr>
<td>Longitudinal Study of Employment Outcomes</td>
<td>Long-term</td>
<td>Survey</td>
</tr>
<tr>
<td>Occupational Employment Projections</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Update Previous Occupational Employment Projections</td>
<td>Short-term</td>
<td>Update Existing Study</td>
</tr>
<tr>
<td>Project Educational Attainment for People with Disabilities</td>
<td>Short-term</td>
<td>Data Analysis</td>
</tr>
<tr>
<td>Analyze Supply and Demand for Workers with Disabilities</td>
<td>Long-term</td>
<td>Data Analysis</td>
</tr>
<tr>
<td>Employer Policies, Practices, Attitudes, and Costs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Case Studies of Employers</td>
<td>Short-term</td>
<td>Update Existing Study</td>
</tr>
<tr>
<td>Survey of Hiring Practices</td>
<td>Long-term</td>
<td>Survey</td>
</tr>
<tr>
<td>Analysis of Health Care Costs for Employers</td>
<td>Long-term</td>
<td>Data Analysis</td>
</tr>
<tr>
<td>Assistive Technology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment-Based Functional Limitation Tool</td>
<td>Long-term</td>
<td>Data Analysis</td>
</tr>
<tr>
<td>Hiring Tools</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Develop a Job Matching Interface for O*NET</td>
<td>Long-term</td>
<td>Data Analysis/Integration</td>
</tr>
</tbody>
</table>

Largely due to necessity, our work has involved delving into the data sources used in the studies identified in Volume 1. Part of attempting to reconcile and connect the many different studies concerning disability trends is verifying that the trends identified 5, 10, or 15 years ago really are trends, rather than temporary phenomena, artifacts of data, or the results of interpretation.

An aspect of this study not fully contemplated or anticipated in the original work plan has been the debut of the six new questions in the monthly CPS that promise to provide additional insights into the effects of disability on different employment outcomes across different demographic groups.

A more encompassing look at the larger time frame clarifies some important aspects of disability and disability trends. We do not reach conclusions as such, but have highlighted some elements of disability data that should be of interest to anyone concerned about the quality and compatibility of different data sources. As measured by SIPP and CPS data, a number of employment outcomes for people with severe disability have been declining in recent years. Key trends in four important employment outcome indicators are highlighted below.
Labor Force Participation Rate

Labor force participation rates have been declining for people with and without disabilities since the mid to late 1990s. The decline for people with disabilities has been slightly more rapid than for the general population. Figure I-1 shows the 15-year trends for labor force participation, as measured by CPS March Supplement data. Labor force participation for people with no disability peaked at about 82 percent between 1998 and 2001, and has been declining since then. Among people with any disability, labor force participation peaked at just over 71 percent in 1997, and again between 1999 and 2000, but has been declining on average since that time. For those classified as having severe disability, labor force participation peaked in 1997, and has been declining on average since then. It is notable that while labor force participation among those without disabilities has been essentially unchanged at about 80 percent since 2003, it has been mostly declining for those with disabilities during the same time period.

Figure I-1. Labor Force Participation by Disability Type (CPS Data)

Employment Rate

Figure I-2 shows employment rates for people with and without disabilities from 1994 through 2008. From 1997 until 2000, employment rates were increasing for people with disabilities and people without disabilities. It is notable that employment rates for people with disabilities were rising more quickly than for people without disabilities. For people with no or any disabilities, the upward trend stopped in 2000; it stopped in 2001 for people with severe disabilities. There were steep declines for all three groups beginning in 2001, with the steepest declines for people with disabilities of any kind.
This is a clear indication that broad economic trends affect people with and without disabilities differently. This suggests that people with disabilities tend to lack the necessary skills and training to better weather economic downturns.

**Weeks Worked**

As shown in Figure I-3, among employed working-age individuals with severe disability, the average number of weeks worked has been declining steeply since 2004. Among those with any disability, the average number of weeks worked has been mostly declining since 2002. Both groups, on average, showed gains prior to the declines. Among people without disabilities, average weeks worked slowly decline (on average) until 2004, and have been slowly increasing since that time. Aside from trends, the most striking comparison is the amount of variability, with those with severe disability varying the most, and those without disability having the most stable employment, as indicated by the number of weeks worked.

Together, these data suggest not only the reality that people with disabilities encounter more interruption to work, but that larger economic trends affect them more than people without disabilities.

**Figure I-2. Employment Rate by Disability Level, 1994-2008 (CPS Data)**
Figure I-3. Weeks Worked by Disability Level, 1994 to 2008, Employed Individuals Aged 16-64 (CPS Data)

Weekly Earnings

Among employed working age individuals without disabilities, real weekly earnings have been trending downward since 2004, except for a minor upturn in 2007, as measured by the CPS. As shown in Figure I-4, employed people with any disabilities earn roughly 85 percent as much as people without disabilities, on average. Employed individuals with severe disabilities earn about half as much as people without disabilities.

Looking beyond earnings levels, CPS data shows that weekly earnings for those with disabilities have greater volatility, and while following similar long-term trends, they are by no means identical to the trends for people without disabilities. People with any disability, for example, saw average weekly earnings decline from 2002 through 2006, with a strong upturn in 2007, and a similarly strong downturn in 2008. From 2004 onward, their pattern was similar to that of people without disabilities, but with steeper changes. On the other hand, people with severe disabilities saw weekly earnings decline from 2003 through 2006, and then increase through 2008.
Figure I-4. Earnings by Disability Level, 1994 to 2008, Employed Individuals Aged 16-64 (CPS Data, 1997 Dollars)
II. Introduction

The demographic composition of any population is necessarily fluid; over time, it will undergo a variety of changes and adjustments as immigration and emigration take effect, advances in medical technology result in better health and longer life spans, and social progress brings better educational and employment opportunities to the population. Understanding these demographic shifts throughout history represents a significant challenge, but attempting to predict future changes is of even greater importance for policy makers. Public policy is fundamentally dependent on the population it intends to serve, and understanding what that population will be tomorrow is necessary to design future policy for it today.

Understanding the demographic and labor market shifts of the overall population, and how those shifts will affect the population with disabilities, is therefore of the highest priority for those involved in disability policy. The population with disabilities can be expected to undergo significant changes in the coming decades, some caused by trends within the population with disabilities itself, such as the projected gender distribution based on historical trends, and others the result of broader trends in the overall population, such as the consequences of the aging Baby Boomer generation on the size of the population with disabilities.

To date, however, research into the major demographic trends and changes that affect the workplace, and how such trends affect the employment of people with disabilities, has been limited. State and Federal government agencies have focused for decades on reducing the impact of disability on labor force participation, employment outcomes, and employer reluctance to hire people with disabilities. As a result, disability employment research in that period has largely focused on employment trends themselves, and on the effects of certain government policies and programs in particular, rather than on demographic trends and implications.

Researchers have, however, composed a considerable body of literature on disability and employment. Disability has been found to affect employment for a wide variety of reasons, but researchers have yet to exhaustively account for employment trends in this population. Because disabilities can decrease a worker’s productivity, or at least an employer’s perception of that productivity, an employer may be less likely to hire a worker with a disability. Societal prejudices against those with disabilities can exacerbate this trend, making employers and coworkers less likely to help accommodate a worker with a disability. Moreover, the demographic composition of the population with disabilities—age, race, gender, education, and more—carry numerous implications for employment. The consequence of these competing trends is a complex intersection of economic, social, and cultural characteristics.

In studying these trends, some researchers ask to what degree disability affects the probability of labor force participation and employment, level of compensation, and degree of mobility. Others examine how disability affects a person’s social life, political activity, and overall quality of life. Most examine the trends as supply-side issues; that is, as matters related to the population of available workers with disabilities. Recently, however, certain researchers have begun assessing trends from a demand perspective, examining employers’ outlook towards workers with disabilities and how that outlook can be improved.
As the negative effects of disability are revealed, policies are naturally implemented to improve the situation for those with disabilities. Outreach programs, benefits systems, rehabilitation, and training all focus on mitigating the economic and social effects of disabilities with such programs comes further study into their effectiveness and costs, both for the assisted individuals and for the labor market as a whole.

The purpose of this report was to conduct a meta- and gap analysis of statistical research into changing demographic, workplace, and workforce trends that will affect the employment of people with disabilities, synthesizing the existing literature, and identifying areas for future research. This research project intended to use meta- and gap analysis methodologies that would require systematic identification and analyses of diverse sources of information on the subject. However, given the nature of available studies and the limitations of the data, a meta-analysis was not practical as initially planned. As outlined in Section III, below, most major surveys had not been designed to assess disability itself until recently. Consequently, data sufficient for comparisons across surveys and studies did not exist for a meta-analysis to be conducted. Instead, an analysis of data from the Current Population Survey and Survey of Income and Program Participation is presented in a subsequent volume of this report, augmenting the gap analysis presented here.

This project covers systematic reviews of original research completed within the social sciences realm that was published in peer-reviewed journals, as well as un-published major papers or reports that were made available to the public. This latter category includes government reports, white papers, and studies from the business sector. By creating such a systematic account of what research into demographic and workforce trends exists, and what research will be necessary in the future, ODEP will be in a better position to lay out a road map for future research and disability employment policy development. To this end, this report concludes with an outline of EconSys’ recommended research plan aimed at closing existing gaps in the literature, improving the current state of disability employment research, and providing a structural goal for future research to follow.

**Organization of Report**

This report has been divided into two parts: Part One is an Assessment of Existing Research and Data, while Part Two provides our Proposed Research Design Plan. Part One, in turn, is divided into two volumes: Volume I presents a comprehensive overview of the literature on changing demographic and workplace trends, the implications of those trends for the employment of those with disabilities, and an account of the gaps in that body of research; Volume II presents our analysis of recent CPS and SIPP data on employment trends within this population, which takes the place of the meta-analysis as initially planned. Together, these volumes present a complete and detailed examination of the current research into demographic trends in the population with disabilities, and how those trends affect employment.

In the following six chapters of this volume, we provide a thorough examination and summary of available research on changing demographics trends and disability employment. The literature has been categorized by subject; first the demographic composition of the general population, followed by employment trends for those both with and without disabilities,
followed by employer trends, and finally by assistance and accommodations programs. The concluding chapter, mirroring the categories and ordered presentation of the previous chapters, evaluates this body of literature and identifies the gaps which remain in it. In addition to this narrative review, an annotated bibliography has been attached to provide brief descriptions of the sources described in the literature review itself, along with additional sources for further review. This is so that our account can provide the most concise yet complete account of demographic trends that affect the workplace and disability research possible.
III. Data Sources and Definitions

The study of demographic and employment trends in a given population, both with and without disability, can be broken down into the study of a wide variety of specific data elements and measures. For example, the demographic composition of a population includes not only the rate of disability, but also the distributions of that population by age, race, gender, education, income, and many other factors. The study of employment is most commonly broken down to four primary measures: labor force participation, which includes those currently working and those actively seeking work; employment rate, the percentage of the labor force that is employed; and weeks worked and weekly earnings, which provide information on the types and effects of employment in the population.

These trends are measured, analyzed, and tracked by a variety of surveys and statistical tools. These provide the core data for a wide range of studies and reports on the demographics and employment of populations with and without disabilities. In addition, the demographics and employment of a population will also be affected by broader trends in the US and global labor markets. These include globalization and the expansion of new markets and labor pools; technological advances which increase productivity while reducing the number of employees needed; and increased access to, and demand for, education. While it is largely impossible to statistically measure such trends, subjective analysis of recent history allows researchers to project their future implications.

Until recently, however, most major surveys have not been designed to assess disability itself. Instead, disability has been a contextual variable lacking the concrete criteria that would allow each researcher to be confident that she or he is addressing disability from the same starting point as others. This is compounded by the use of different sets of survey questions and criteria for defining disability and employment status, making comparisons between different data sources even more tenuous.

These facts require, therefore, that any exploration of the state of changing demographic trends and implications for people with disabilities research first begin with a review of the data sources researchers use. It is impossible to simply compare various studies without taking into account which sources they use, and therefore which populations are encompassed by the definitions (e.g. of disability and employment) that those studies use. Furthermore, the fact that many surveys change criteria for inclusion over time and therefore may reach different populations during different time periods further affects any appraisal of the research. Studies which use the same survey but different time periods may not be directly comparable, therefore, making even otherwise simple comparisons more complex.

Data Sources

While there are a great many surveys and data sources, both national and local, that contribute to demographic and employment research, a core group serves as the foundation for the bulk of the available studies and reports. This group is comprised of surveys performed by the National Center for Health Statistics, the Bureau of Labor Statistics, and the US Census Bureau, and are further described in Table III-1, below. While these national surveys are the most frequently used data sources, a broad range of more narrowly focused or specialized sources
are also used. These include data from the Equal Employment Opportunity Commission, the Social Security Administration, the Occupational Network database, and the Medical Expenditure Panel Survey, along with academic surveys such as those performed by Rutgers University and the University of Michigan’s Panel Study of Income Dynamics and Health & Retirement.

Table III-1. Description of Primary Surveys

<table>
<thead>
<tr>
<th>Survey Name</th>
<th>Organization</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decennial Census</td>
<td>US Census Bureau</td>
<td>The US decennial census captures a broad range of data on the US population, particularly regarding income and poverty issues. The most recent available census is 2000.</td>
</tr>
<tr>
<td>American Community Survey (ACS)</td>
<td>US Census Bureau</td>
<td>The ACS is an ongoing survey that is intended to supplement the longer, decennial census. This allows it to provide more current information than the longer survey.</td>
</tr>
<tr>
<td>Survey of Income and Program Participation (SIPP)</td>
<td>US Census Bureau</td>
<td>The SIPP provides sub-annual information about income and assets, along with data on participation in government transfer programs.</td>
</tr>
<tr>
<td>CPS March Supplement</td>
<td>US Census Bureau and US Bureau of Labor Statistics</td>
<td>The CPS March Supplement includes data on income from the previous year, along with job mobility, tenure, and temporary employment. Until recently, used more frequently for disability studies than the monthly CPS.</td>
</tr>
<tr>
<td>Job Openings and Labor Turnover Survey (JOLTS)</td>
<td>US Bureau of Labor Statistics</td>
<td>Established in 2002, the JOLTS is a monthly survey of job openings and labor turnover data obtained from a sample of businesses. Data includes employment, job openings, hires, quits, layoffs and discharges, and other separations.</td>
</tr>
<tr>
<td>National Health Interview Survey (NHIS)</td>
<td>National Center for Health Statistics (CDC)</td>
<td>The NHIS is the primary source of data on the health of the US population, and is used to track trends in disease and disability.</td>
</tr>
</tbody>
</table>

The decennial Census, ACS, SIPP, and CPS are the foundational sources for most research into the employment, both for those with and without disabilities. The more recently established Job Openings and Labor Turnover Study (JOLTS) is also of particular note because of its unique focus on employer demand. While the former surveys provide substantial data on supply factors such as employment outcomes, labor force participation, and unemployment, the latter focuses on demand factors like vacancy rates and separations.

While JOLTS does not focus on demand for employees with disabilities in particular, it is a valuable tool for researchers interested in exploring the impact of employer demand on broader employment trends. As time passes and the survey’s data set grows, researchers can be expected to focus on it more closely.

None of these studies focus exclusively on the population with disabilities, and in fact many were not explicitly intended to identify the population with disabilities. But, as with many ongoing surveys, most are updated periodically in an effort to improve effectiveness and accuracy. Such updates have at times been used to better identify those with disabilities. In early 2006, for example, the ACS tested new content in preparation for the 2008 survey. The new content was formulated by an OMB interagency work group, and “included separate questions for hearing and seeing, and did not include long lead-ins or a work disability question.” When tested, these changes were found to result in more reliable questions and responses, and were therefore able to better identify the population of persons with disabilities. In 2006, a similar report examined minor alterations to the ACS’ layout and instructions, and found that, as expected, the improvements reduced the over-reporting of certain disabilities, thereby improving the test’s accuracy.

Beginning in June 2008, the CPS began asking a series of six questions designed to identify individuals with disabilities. These questions were specifically designed to assist in research and policy to provide stakeholders with the long-needed tool to ask and answer important questions concerning the role of disability, the incidence and nature of disability, how disability affects employment, and how those charged with implementing policy need to adapt as trends change. Before this addition, researchers used the CPS March Supplement when studying trends in the population with disabilities, since it included questions aimed at identifying disability.

Because these surveys do not focus exclusively on the population with disabilities, comparisons between employment trends for those with and without disabilities can be made within the results of each survey. For example, the examination of labor force participation as measured by CPS in subsequent chapters of this report will compare the participation rate of those with disabilities to those without as reported by that survey. Demographics trends, however, will be examined primarily through the decennial Census’s projections of the overall population. The implications of these broad trends for those with disabilities will then be extrapolated and analyzed.

Table III-2, below, provides a convenient reference for the primary surveys used by the twenty-five sources cited most frequently in this report.

| Table III-2. Summary of Major Studies and Data Sources |
|---------------------------------|--------|--------|--------|--------|--------|--------|--------|
| CPS | March CPS | SIPP | Census | NHIS | ACS | Other |

6 Ibid., 25.
7 Stern and Brault, Disability Data From The ACS (2005), 7.
For further reference, Cornell University has released several “User Guides” to the more prominent data sources, providing greater insight and detail into the methodology and uses of each survey. This series includes Weathers’ 2005 *A Guide to Disability Statistics from the American Community Survey*, and Burkhauser and Houtenville’s 2006 *Guide to Disability Statistics from the Current Population Survey* and 2003 *User Guide to Current Statistics on the Employment of People with Disabilities*. More recently, a 2009 book edited by Houtenville, Stapleton, et al. provided a detailed examination of the current system of data collection on people with disabilities, including flaws and gaps in the data and strategies for improvement.\(^8\)

### Disability Definitions

The nature of disabilities makes any statistical study of the population with disabilities very difficult. Unlike demographics such as sex and age, which in most cases are fairly simple to identify, there is considerable variation among those who report having or not having

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disabilities. For example, an employed person with a serious functional impairment might self-identify as being nondisabled, while an unemployed person with a less severe impairment might self-identify as disabled. Since each survey’s definition of disability guides the questions used to identify it, and therefore alter the population identified as disabled, it is important to examine the various definitions at work.

Certain definitions may also be more likely to include those with short-term impairments rather than narrowing the population to those with long-term conditions. Conceptually, most definitions of disability are based on two primary models: the World Health Organization’s International Classification of Functioning, Disability and Health (ICF) (Figure III-1) and the disability model developed by Saad Nagi in 1965 and 1979 (Figure III-2).

Figure III-1. The Revised World Health Organization Model: International Classification of Functioning, Disability and Health (WHO ICF)9

![Diagram of the Revised WHO Model](image.png)

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Both models recognize disability as a “dynamic process that involves the interaction of a person’s health condition, personal characteristics, the physical environment and the social environment.” Consequently, changes to any one of these factors can affect a person’s ability to function and participate in activities, and therefore alter whether they are identified as having disabilities. In a 1998 article, Alan Jette and Elizabeth Badley provided a very detailed exploration of these conceptual models.

In addition to the various conceptual models of disability, each program for persons with disabilities uses a different definition of disability. The General Accounting Office in 2003 identified over 20 Federal agencies and almost 200 Federal programs that either wholly or partially serve persons with disabilities. The statutory language for each program defines the purpose of the program and the disabilities that make people eligible for the program. In turn, program definitions of disability are used for the various data collection instruments.

In a book published in 2009, a group of prominent researchers, including Andrew Houtenville and David Stapleton, examine the current system for collecting data on people with disabilities, and outline several strategies that could improve that system. Among the most significant problems with current data, they argue, is the absence of a universally-adopted operational definition or definitions for disability. The authors argue that this gap interferes with making sound conclusions based on any single survey, because the particular manner by which that survey identifies those with disabilities may itself be the cause of perceived trends in the data.

One of the primary concerns and criticisms of disability definitions is the degree to which self-reported measures are prone to individual bias. As numerous researchers have pointed out, respondents may alter their responses to certain sorts of questions in order to justify some of their observed actions, or because they question the confidentiality of the survey. A number of reports comprehensively outline the existing literature on this topic, including those by

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As Kreider and Pepper point out in their review, debate on this topic:

...has grown stronger over time, with some [researchers] maintaining that self-reported measures of disability status can be treated as perfectly reliable (e.g., Benitez-Silva et al., 1997; 1999) and others arguing that self-reported measures are completely unreliable (e.g., Meyers, 1982; Bowe, 1993).  

In response to the growing debate over self-reported measures of disability, many researchers attempted to mitigate the potential bias by using reports of specific illnesses or condition rather than reports of broader concepts like disability or work limitation, and subsequently matching particular conditions to disabled or nondisabled status. Researchers theorized that this would “constrain the likelihood that respondents rationalize their own behavior through their answers.”

To test this, a 2004 article by Baker and several colleagues compared responses from a survey using such measures to the medical records of the respondents in an attempt to determine the “accuracy” with which survey responses corresponded to medical status. They concluded that there is considerable error, both positive and negative, in self-reports even for specific conditions, and that this error is related to labor market status. That is, “some individuals' reports of their health may be designed to justify their absence from the labor market.”

While this ongoing debate should not be interpreted as a wholesale condemnation of self-reported measures of disability, particularly since such reports are a fundamentally necessary survey tool, it is an important consideration when assessing research into disability and employment.

Perhaps not surprisingly, researchers disagree over how successfully the primary surveys measure disability. According to an oft-cited series of reports by R. Burkhauser and A. Houtenville, disagreements over how to measure disability status are the “root cause” of the broader disagreements over disability employment trends themselves. They argue that this is because current disability measures tend to rely on work limitation, which is vulnerable to changes in the respondent's current status. And in a subsequent, 2006 article, the authors pay particular attention to the fact that certain measures, including the CPS', do not contain a reference period, which could cause respondents with a short-term limitation to report a disability. The inability to distinguish between short and long-term disabilities can be a severe

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19 Ibid., 1090.
detriment to the accuracy of survey data, particularly for longitudinal studies where fluctuations between these populations become more pronounced.

Meanwhile, Silverstein and his colleagues call the fact that all three primary survey sources (the Census, CPS, and SIPP) use work limitation to identify disability status “controversial,” citing the National Council on Disability’s warning that disability status measures that rely on work limitation could result in “ineffective or even dangerous public policy decisions.” According to Silverstein, the varying measures of disability status cause researchers to come to different conclusions depending on which data and measures they use, further complicating the policymaker’s attempts to condense multiple studies into actionable evidence.

While these authors agree that the current measures of disability status are controversial, they also agree that such controversy does not preclude researchers from coming to accurate conclusions based on available data. According to Burt Barnow, current measures “appear to be adequate for identifying trends in employment patterns for people with disabilities, but they are clearly inadequate for assessing the impact” of particular laws, such as the ADA. Similarly, Burkhauser et al. argue that while disability measures prevent accurate conclusions from being made based on a single survey such as the CPS, comparing the results of multiple surveys can allow researchers to make accurate conclusions about broader national trends.

For example, comparing the CPS to the SIPP and other surveys reveals that, while specific estimates and data are not consistent, broad trends can be found across each survey. Similarly, in their 2006 report, Burkhauser et al. argue that “while work limitation questions are limited in their ability to measure the level of disability, they are useful for looking at trends over time and across states.” A more recent 2009 publication by Houtenville and Stapleton argued that broad comparisons across multiple surveys help minimize the distorting effects of particular definitions of disability. Silverstein advocates the use of both national and local surveys in individual studies in order to ensure that the resulting conclusions are unbiased by one particular view or definition. The California Work and Health survey, for example,

“...combines the features of Federal labor market surveys, such as the [CPS] and its supplements, with health surveys like the National Health Interview Survey, thereby allowing the two kinds of information to be integrated into a single data source.”

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23 Barnow, (2008), 49.
25 Ibid., 3.
28 Silverstein, Julnes, and Nolan (2005), 403-404.
Thus, while directly comparing the results of multiple surveys is generally not advisable, by including multiple surveys in an analysis researchers can balance the differences between surveys and reach more persuasive and inclusive conclusions. Because an awareness of the definitions used by a survey is invaluable to making a sound assessment of studies based on that survey, Table III-3 outlines the definitions used by the primary surveys.

### Table III-3. Description of Disability Definitions Used By Major Surveys

<table>
<thead>
<tr>
<th>Survey</th>
<th>Definition</th>
<th>Gaps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decennial Census</td>
<td>Uses several questions to identify those for whom a sensory, physical, mental, or emotional condition affected any of the following life activities: learning, remembering, or concentrating; dressing, bathing, or getting around the house; going outside the home alone to shop or visit a doctor’s office; and working at a job or business.</td>
<td>Problems may exist in the “length and complexity of some of the disability questions, likely leading to undercounts of the population with employment disabilities and the population with stay-at-home disabilities (which may overlap).”</td>
</tr>
<tr>
<td>American Community Survey (ACS)</td>
<td>Based on the decennial Census, uses six questions to identify “long-lasting health condition associated with disability,” along with conditions that cause activity limitations, interfere with daily living, or affect employment.</td>
<td>Similar to the decennial Census, but widely regarded as an improvement on that survey.</td>
</tr>
<tr>
<td>Current Population Survey (CPS)</td>
<td>Uses several questions to identify those for whom health has interfered with employment in some way. Additional questions to specifically identify disability were added in June, 2008.</td>
<td>The Census Bureau warns that the CPS and its supplement were not designed to capture “any particular concept of disability” prior to the addition of the new survey items in 2008, and therefore data prior to June 2008 may not be appropriate for certain research issues.</td>
</tr>
<tr>
<td>CPS March Supplement</td>
<td>Identifies characteristics that limit work activities, either by preventing employment or limiting the option for employment.</td>
<td>Similar to the primary CPS survey.</td>
</tr>
<tr>
<td>Survey of Income and Program Participation (SIPP)</td>
<td>Uses multiple questions to “capture limits in functional activities (for example, seeing, hearing, and speaking); activities of daily living (such as getting around the home, getting in and out of bed, and eating); instrumental activities of daily living (for instance, going outside of the home, keeping track of money, and preparing meals); the use of assistive devices; the presence of conditions related to mental functioning; and the presence of a work disability.”</td>
<td>One of the most comprehensive surveys available. By asking some questions several times over approximately two and a half years, provides the opportunity to look for changes over time and long-term impairments.</td>
</tr>
<tr>
<td>National Health Interview Survey (NHIS)</td>
<td>Uses multiple questions to identify respondents with “major” or “non-major” activities associated with their age group. For the working-age population, major activities include those associated with employment and daily living.</td>
<td></td>
</tr>
</tbody>
</table>

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Government Definitions of Disability

Not only is disability an inherently difficult concept to define, but as Michelle Adler outlined in a report for the US Department of Health and Human Services, programmatic definitions of disability are especially prone to variation because they are dependent on the regulations governing the program in question. These regulations may fold other concepts such as age and income into the consideration of disability.\(^{31}\) The Government Accountability Office has also found that there are varied definitions.\(^{32}\) Such concepts carry with them their own difficulties and vagueness, which further complicates the attempt to define disability.

In her report, Adler provides a table outlining the basic definitions used by state and Federal disability programs. Table III-4, below, partially reproduces Adler’s table to provide a snapshot of how several Federal programs define disability.

Many of these programmatic definitions are at least indirectly dependent on the American Medical Association’s *Guides to the Evaluation of Permanent Impairment*, which doctors use to evaluate and quantify patients’ disability. In 2000, the *Journal of the AMA* published a report summarizing the most common criticism of the *Guides*, and offered nine recommendations for improvement. According to this report, criticisms of the *Guides* can be grouped into two types;

First, criticisms focus on internal deficiencies, including that it fails to provide a comprehensive, valid, reliable, unbiased, and evidence-based system for the rating of impairments; that the impairment ratings do not reflect perceived and actual loss of function and quality of life; and that the numerical ratings represent legal fiction, not medical reality. ... The second set of criticisms focuses on how workers’ compensation systems use the Guides’ ratings. The concern is that the ratings are improperly used as a substitute for a full assessment of the impact of impairment on work and nonwork capabilities, and that therefore workers receive inappropriate compensation.\(^{33}\)

These potential weaknesses prevent medical practitioners from making consistent, fact-based decisions regarding the presence of a disability in applicants to benefits programs, thereby affecting participation in those programs. In their recommendations, the authors call for increased discussions towards making future editions of the *Guides* scientifically sound and trustworthy.\(^{34}\)

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\(^{32}\) GAO-07-934SP (2007), 12.

\(^{33}\) Spieler, Barth, Burton, et al., “Recommendations To Guide Revision” (2008), 520.

\(^{34}\) Ibid., 523.
Table III-4. Selected Government Definitions of Disability

<table>
<thead>
<tr>
<th>Program</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Federal Civil Rights Legislation</strong></td>
<td></td>
</tr>
</tbody>
</table>
| Americans with Disabilities Act (ADA)       | “The term ‘disability’ means, with respect to an individual: a) a physical or mental impairment that substantially limits one or more of the major life activities of such individual; b) a record of such an impairment; or c) being regarded as having such an impairment.”  
The ADA Amendments Act of 2008, while maintaining the text of the above definition, alters the statutory interpretation of several key phrases. of note: the phrase “substantially limits” will be interpreted with less stringency; mitigating measures other than ordinary corrective lenses will not be considered; major life activities will be expanded to include bodily functions; and episodic conditions or conditions in remission will be considered as active. |
| **Department of Labor**                      |                                                                                                                                                                                                          |
| Workforce Investment Act (WIA)              | The WIA, administered by the Department of Labor, uses the ADA’s definition of ‘disability,’ as defined in 42 USC § 12102 (2)  
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38 Department of Labor Workforce Investment Act (WIA) The WIA, administered by the Department of Labor, uses the ADA’s definition of ‘disability,’ as defined in 42 USC § 12102 (2) |
| Social Security Disability Insurance (SSDI)  | According to the SSA’s public website, “Disability’ under Social Security is based on your inability to work. We consider you disabled under Social Security rules if: You cannot do work that you did before; We decide that you cannot adjust to other work because of your medical condition(s); and Your disability has lasted or is expected to last for at least one year or to result in death.” 39 The SSA maintains a list of conditions which are automatically considered severely disabling; for conditions not listed, the SSA individually determines whether the applicant’s condition is at least as disabling as those on the list, or whether it prevents the applicants from returning to previous employment and finding new employment. |
| Supplemental Security Income (SSI)           | Individuals can qualify as disabled or blind. For disability, an individual must have an inability to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment that can be expected to result in death or has lasted or can be expected to last for a continuous period of not less than 12 months. For blindness, an individual must be statutorily blind, that is, having central visual acuity of 20/200 or less in the better eye with the use of correcting lens. Adults: To meet this definition, an individual’s impairment or combination of impairments must be so severe that he or she is unable to do past work, but cannot, considering age, education, and work experience, engage in any other kind of substantial gainful activity that exists in the national economy. Children: A child under age 18 will be considered disabled for purposes of eligibility if he suffers from any medically determinable physical or mental impairment of "comparable severity" to that which would make an adult disabled. |

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35 Adler (1991), 19-21, except where otherwise noted.
36 42 USC. § 12102 (2)
38 29 USC. § 2801 (17)
### Table III-4. Selected Government Definitions of Disability (continued)

<table>
<thead>
<tr>
<th>Program</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Department of Health and Human Services (continued)</strong></td>
<td></td>
</tr>
<tr>
<td>Medicare</td>
<td>An individual under age 65 who received SSDI benefits for 24 months or more or who was medically determined to have end-stage renal disease (that stage of kidney impairment that appears irreversible and permanent and requires a regular course of dialysis or kidney transplantation to maintain life).</td>
</tr>
<tr>
<td>Medicaid</td>
<td>A disabled individual must receive SSI in most States. Thirteen States use the 209(b) program option. They may impose additionally more restrictive eligibility criteria for Medicaid than for SSI. Three of these (Indiana, Missouri, and New Hampshire) employ more restrictive definitions of disability than that used by SSA and the latter two exclude children on SSI from Medicaid. Ten other states (Connecticut, Hawaii, Illinois, Minnesota, Nebraska, North Carolina, North Dakota, Ohio, Oklahoma, and Virginia) use the same definition of disability, but more restrictive financial criteria than that used by SSI. In addition, state Medicaid programs may use functional criteria for coverage of nursing home services, home health services, personal care services, home and community-based waiver services, and other Medicaid-covered services. Two levels of disability criteria may be applied—one to determine overall Medicaid eligibility and one to determine eligibility for specific covered services.</td>
</tr>
<tr>
<td><strong>Department of Veterans Affairs</strong></td>
<td></td>
</tr>
<tr>
<td>Veterans Disability Compensation Program</td>
<td>An individual must have a partial or total impairment by injury or disease incurred or aggravated during active military duty. A Veterans Affairs (VA) rating board employs criteria developed by VA to rate the extent of a disability.</td>
</tr>
<tr>
<td>Veterans Disability Pension Program</td>
<td>An individual must have an injury or disease sustained outside of military service rendering a veteran permanently and totally impaired. Impairment is determined based on the veteran’s ability to function at work and at home.</td>
</tr>
<tr>
<td><strong>Department of Defense</strong></td>
<td></td>
</tr>
<tr>
<td>Civilian Health and Medical Program of the Uniformed Services (CHAMPUS)--Program for the Handicapped (PFTH)</td>
<td>Disability for military dependents is based on the strength and duration of a physical or mental handicap. The physical handicap must be of such severity as to preclude the individual from performing basic activities of daily living at a level expected of unimpaired individuals of the same age group and must be expected to result in death or to have lasted or be expected to last for at least 12 months. For a mental handicap, the applicant must be medically determined to be moderately or severely retarded.</td>
</tr>
<tr>
<td><strong>Department of Education</strong></td>
<td></td>
</tr>
<tr>
<td>State Grants for Children with Disabilities</td>
<td>The term &quot;children with disabilities&quot; means children (aged 3-21): (a) with mental retardation, hearing impairments including deafness, speech or language impairments, visual impairments including blindness, serious emotional disturbance, orthopedic impairments, autism, traumatic brain injury, other health impairments, or specific learning disabilities; and, (b) who, by reason thereof need special education and related services. For ages 3-5 only, the term &quot;children with disabilities&quot; may (at a State's discretion) including children: (a) experiencing developmental delays, as defined by the State and as measured by appropriate diagnostic instruments and procedures, in one or more of the following areas: physical development, cognitive development, communication development, social or emotional development, or adaptive development; and (b) who, by reason thereof need special education and related services. Evaluations are carried out by a multi-disciplinary team.</td>
</tr>
</tbody>
</table>
The gap between the definitions used by assistance programs and those used by surveys is particularly important when discussing the American with Disabilities Act because no survey measure exists which entirely captures the population targeted by that Act. Mitchell LaPlante has argued that the ADA’s definition of disability is notably broad, and includes not only impairments that interfere with major life activities, but also impairments that prevent a person from performing such an activity in the same way someone without disabilities would. Of the major national surveys, LaPlante says, the NHIS uses the most similar definition. The NHIS is therefore the most natural source when studying the ADA’s effects, because it will be the most effective in identifying the ADA’s target population.

It should be noted, though, that even the NHIS is not a perfect source for studying the ADA. As Blanck et al. pointed out in 2003, up to that time no research had adequately isolated the precise group targeted by the ADA’s provisions. Because the definitions of disability used by these studies do not precisely match the ADA’s definition, a level of uncertainty is introduced into any conclusions that can be drawn from the data. Because of this definition disparity, the authors argue that “existing research does not allow for” conclusions to be made about the ADA’s success, illustrating the importance of considering the definitions used in studying this topic.

Furthermore, whenever an attempt is made to analyze or recommend future adjustments to existing policies or programs, it is important to use data from a source that reaches the same population as that policy or program. Analyzing the ADA based on data that does not closely resemble the population targeted by that law will result in erroneous, or at least potentially erroneous, conclusions. While surveys rely on self-reported disability status, most government programs use third-party evaluations of applicants to make an objective determination of disability status. Therefore, reports that discuss particular government programs or laws should be reviewed to ensure that the data used is appropriate for that program.

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40 5 C.F.R. § 831.1202
41 LaPlante (1992), 2-3.
Perceptions of Disability

In 2003, Paula Popovich led a study into common beliefs about what constitutes a disability, including how closely these conceptions match programmatic definitions of disability, and what this implies for the programs themselves. Popovich and her colleagues were particularly interested in how these conceptions influenced the ability of those with disabilities to be fully accommodated for and incorporated into the workplace, a subject discussed in greater detail later in this literature review. They found that the public conceptions of disability did not necessarily match existing government definitions, particularly the ADA’s. In particular, physical and sensory-motor conditions were more likely to be considered disabilities than psychological conditions. The researchers argued that this indicated a need for greater education and outreach towards workers without disabilities, in order to improve public awareness of what constitutes a disability and thereby encourage the acceptance of workers with disabilities into the workplace.

Employment Definitions

Although there are also variations in how surveys define and identify employment, Burt Barnow’s 2008 article, titled “The Employment Rate of People with Disabilities,” noted that employment status is a far less controversial difference between surveys than disability status. Barnow explains that the CPS serves as the basis for most employment measures, such that other surveys use the CPS’ employment measure as the foundation for their own. The Census and the SIPP each customize their measures slightly, though, and responses and results from all three cannot be expected to be perfectly consistent. Nevertheless, most researchers do not criticize these standard measures.

While the strict definition of what constitutes employment is largely uncontroversial, there are other potential difficulties that arise when issues such as temporary or part-time employment are considered. As will be discussed later in this report, workers with disabilities are more likely to work part-time or non-standard hours than workers without disabilities. Other concerns, such as compensation, must also be considered.

There has also been some discussion of how employment is measured by statisticians. In a 2003 examination of multiple data sources, including the NHIS and CPS, Stephen Kaye found that the trends for employment and unemployment among those with disabilities did not correspond to each other. That is, while employment rates for those with disabilities remained the same, unemployment decreased steadily. In explaining this phenomenon, Kaye noted that in calculating the employment rate, many researchers use the entire working-age population as the denominator, whereas the calculation for the unemployment rate uses the narrower population of working-age labor force participants as the denominator.

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43 Popovich, Scherbaum, Scherbaum, and Polinko, “The Assessment of attitudes” (2003), 163.
44 Ibid., 173-174.
45 Barnow (2008), 44-45.
Defined this way, the “employment rate” includes a very broad range of people, including those who are not interested in employment, while the unemployment rate captures a very narrow segment of the population, measuring only those who are actively seeking employment. Kaye argues that because of these issues, the current employment and unemployment rates fail to provide the necessary information for creating disability policy, and calls for more specialized statistics that measure the employment rate of those able and available to work.\textsuperscript{47}

\textsuperscript{47} Ibid., 14-15.
IV. Labor Supply and Demographic Trends

Public policy planning requires a thorough understanding of the policy’s targeted population, both present and future. Understanding the demographic shifts in the overall population, and how those shifts will affect the population with disabilities, is therefore of the highest priority for those involved in disability policy. The population with disabilities can be expected to undergo significant changes in the coming decades, some caused by trends within the population with disabilities itself, such as the projected gender distribution based on historical trends, and others the result of broader trends in the overall population, such as the consequences of the aging Baby Boomer generation on the size of the population with disabilities.

In order to place these demographics into proper context, we must first determine the relative size of the population with disabilities in comparison to the overall population. A 2001 report by Houtenville and Adler examined the March CPS and found that the disability rate—the average number of people with a work-limiting disability—varied between 7 and 8 percent between 1981 and 2000. These approximate rates are corroborated across multiple other studies, such as LaPlante’s 1993 comparison of disability rate by state. It found that in 1990, state disability rates varied between 12.6 percent (West Virginia) and 6.2 percent (New Jersey), with an average of 8.2 percent. A 2008 study of 2007 ACS responses found that disability rates varied by state between 22.4 percent (West Virginia) and 9.3 percent (New Jersey,) with an average of 12.8 percent. This latter study is notably higher because, as shown in Table III-3, above, the ACS captures both work and non-work disabilities, while the sources for the previous two studies are confined to impairments that affect employment.

A 2008 Cornell University study used CPS March Supplement data from 1981 through 2008 and found that in 2008, the disability prevalence rate for the working-age population was 7.9 percent, a very slight decline from 2007’s mark of 8 percent. Historically, they found that after peaking at 8.4 percent in 1994, the disability rate fell until the 2001 level of 7.7 percent, and has since fluctuated between 7.7 and 8.4 percent. Although the CPS measure is self-definitional and therefore subject to individual variation, there is considerable consistency over time, suggesting relative stability even if not identical interpretations.

Within this context, we can proceed to examine the demographic forces which will affect the population both with and without disabilities in the future. In the following sections, we will examine age, gender, race and ethnicity, education, income, and other factors, all of which will shape the US population in the years to come.

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Age

Because age is so closely related to the overall health of individuals and the population in general, it is also one of the most important demographic factors to consider when studying disability. This is particularly true given the dramatic changes in age distribution that the US population is expected to undergo in the following decades. It is now widely recognized that the proportion of the population over the age of 65 will grow significantly during this century. In fact, according to recent projection by the US Census Bureau, that segment of the population will more than double in size by 2050. By comparison, the population aged 18-44 is only expected to grow by 32 percent in that time. This trend can be seen more dramatically in Figure IV-1, below, which shows the proportion of each age group within the overall population. By this measure, while the relative size of the 18-24 range will remain roughly the same between 2010 and 2050, the size of the 65-84 population will almost double.

Figure IV-1. Population Distribution By Age, 2010-2050 (Census Data)\(^\text{53}\)

And in two articles, published in 2002 and 2007, Mitra Toossi projected labor force demographics for the US several decades into the future and found that the older population can be expected to grow five times faster than the overall work force.\(^\text{54}\)


\(^{53}\) Ibid.

This pattern is not confined to the US. The UN’s Population Division released a report in 2007 which found that the world’s older population is undergoing “unprecedented” growth, and in fact has been for several decades. In 1950, those over age 60 accounted for 8 percent of the world’s population; by 2007, this proportion had increased to 11 percent, and by 2050 it is expected to grow to 22 percent. The growth of this group is particularly dramatic in developed countries, in which those over 60 represent one-fifth of the population, and are expected to be one-third by 2050.55

The projected growth of the older population can be attributed to a number of factors. According to the UN, “population aging results mainly from reductions of fertility that have become virtually universal,” coupled with the extension of average life spans.56 That is, reduced fertility rates decrease the number of young people, while extended life spans increase the number of older people. In tandem, these trends will result in a dramatically increased proportion of older people in the future. This is magnified in the US by the Baby Boom generation, which is considerably larger than the generation preceding it. As the Baby Boom generation ages, it will swell the size of the older population, resulting in the increases described above.57

Such a dramatic increase in the size of the older population is likely to have a significant impact on the size and composition of the population with disabilities as well, because age is an important factor in determining the likelihood that a person is disabled. Cornell University’s 2007 ACS “Status Report” found that in that year, 12.8 percent of those aged 21-64 had a disability; 29.7 percent of those aged 65-74 had a disability; and 52.9 percent of those older than 75 had a disability.58 Figure IV-2, on Page 33, uses data from a 2008 study by William Erickson and Camille Lee to demonstrate how dramatically the disability rate increases with age.

A 1996 statistical abstract by Kaye et al. examined disability trends by age based on data from the 1970-1994 NHIS survey. The authors found that the increase in disability rate during this period (from 11.7 percent to 15.0 percent) could be largely attributed to two age-related trends: a gradual increase in the size of the older population, and a more recent, dramatic increase in the number of younger respondents identified as disabled.59

The former trend is a result of an increase in the proportion of the elderly in the overall population outlined above. Those older than 65 experience disability at twice the rate of those aged 45-65, and four times the rate of those younger than 45. While the disability rate among the elderly remained constant during the period of this study, the size of that population

56 Ibid., xxvi.
58 Erickson and Lee (2008), 12-16.
increased, inflating the disability rate for the overall population.\textsuperscript{60} This trend was augmented by another which began in the early 90s, and saw greater numbers of the younger population identify as disabled. Kaye et al. identify certain disorders, such as asthma and attention deficit disorder, as potentially the cause for this rapid increase.\textsuperscript{61} In combination, these two age-related trends help explain the significant increase in overall disability rates.

In 1991, Suzanne Kunkel and Robert Applebaum prepared a report for the Department of Health and Human Services projecting the effects of the aging population on the disability rate in the US. They found that by 2020, under the most conservative estimates of future disability and mortality rates, “the population of older people experiencing disability is projected to increase about 84 percent, from the current 5.1 million to 9.4 million.” If disability and mortality rates remain constant, by 2020 there will be 2.5 million more older people, defined as the population over age 65, estimated to have a severe disability, and 2.2 million more will have moderate disability.\textsuperscript{62} These estimates clearly show that the simple demographics of an aging population will cause the disability rate in the US to increase significantly over the coming decades.

In considering Kunkel and Applebaum’s conclusions, a 2001 study by Kenneth Manton and XiLiang Gu is of particular note because it analyzes changes in the disability rate among the elderly US population. Manton and Gu studied the National Long-Term Care Survey and found that disability among those aged 65 and above declined through the 1980s and 1990s, and moreover that this decline accelerated during the 1990s. More specifically, they found that the decline between 1982 and 1989 was 0.26 percent per year; from 1989 to 1994 it was 0.38 percent per year; and from 1994 to 1999 it was 0.56 percent per year.\textsuperscript{63}

In other studies, the consideration of age is important because it informs an analysis of that study’s accuracy. For their progress report, Bjelland and Burkhauser define working age more narrowly than a strictly literal/legal definition, using ages 21 to 64. This omits teen workers whose working patterns are variable and less likely to be affected by disability. However, it also omits a number of working age individuals in the 18-20 age group who are military veterans with service-connected disabilities. During the early 2000s, this group’s contribution to the overall working age population increased due to military action in Afghanistan and Iraq. By excluding those in the age 18-20 group, researchers miss the entrance of a significant group of individuals with disabilities into the labor force, and run the risk of attributing their later entrance to other trends.

For example, veterans who entered the labor force at age 19 in 2005 don’t appear as part of the labor force in Bjelland and Burkhauser’s data until 2007, when military actions and resulting injuries were winding down. This can create otherwise difficult-to-explain increases in disability rates and changes in employment outcomes. Even though the magnitude of veterans’

\textsuperscript{60} Kaye, LaPlante, et al. (1996), 2-3.
\textsuperscript{61} Kaye, LaPlante, et al. (1996), 4.
\textsuperscript{63} Manton and Gu, “Changes In The Prevalence of Chronic Disability” (2001), 6354.
contribution to overall trends is not very large, their presence in the data can enhance or mask other trends. They also tend to be magnified when the population is segmented by age and sex.

Gender

Studies have repeatedly found that, on average, women experience disability at a higher rate than men. For example, Cornell University’s review of 2007 ACS data found that the overall disability rate for males over the age of 5 was 14.3 percent, while the rate for females over 5 was 15.5 percent.\(^6^4\) Similarly, Julia Bradsher’s 1996 examination of SIPP data found that 20.2 percent of women had a disability, compared to 18.7 percent of men.\(^6^5\) Mitchell LaPlante’s 1992 report on the NHIS, however, found that for the working aged and those over 75, women had a higher disability rate, but for those aged 65-74, men were more likely to be disabled.\(^6^6\) As seen in the Cornell study, though, Erickson and Lee found the gender gap to be very small for ages 21-74, and much greater for the older and younger groups. Erickson and Lee’s findings with respect to age and gender are summarized in Figure IV-2.

Figure IV-2. Disability Rate By Gender and Age, 2007 (ACS Data)\(^6^7\)

In projecting future disability trends, Kunkel and Applebaum specifically looked at the “often-cited finding that women have higher rates of illness and disability than do men, even though in

\(^6^4\) Erickson and Lee (2008), 18.
\(^6^6\) LaPlante (1992), 3.
\(^6^7\) Erickson and Lee (2008), 19.
general women enjoy greater longevity.” In order to show that this gap was not the result of women’s higher average age, they compared the genders within each age group, and found that the pattern remained. They conclude that “the sex differential in disability is not ‘explained away’ by the greater longevity.” That is, women do not have a greater average disability rate than men simply because they tend to live longer, causing the female population to tend to have more older members than the male population. Even within that older population, women are more likely to be disabled than men.

As discussed in the previous section, over the coming decades, the size of the older population is expected to grow considerably. Based on the gender-based trends outlined here, this will likely cause the disability gap between genders to grow. The age groups in which men have higher disability rates than women are expected to decrease in proportion to the population at large, while the age groups in which women have the higher disability rates are expected to grow. According to the 2003 and 2004 March CPS, the disabled population was 51.5 percent female at that time; should these age and gender trends hold, this proportion can be expected to grow. The consequences of an increasingly female disabled population will likely require further study to grasp fully.

Race

A 1996 study of SIPP data from 1991-1992 by Julia Bradsher compared disability prevalence between specific racial and social groups. She found that, while the overall disability rate in the US was 19.4 percent in that period, the rate across specific races varied considerably. As shown in Figure IV-3 Native Americans faced the highest disability rate, at 21.9 percent, while Asian and Pacific Islanders had the lowest rate, at only 9.9 percent. The rate for severe disability was highest among the black population, whose 12.2 percent rate was higher than the US average of 9.6 percent.

These findings were corroborated by Cornell’s 2007 ACS “Progress Report,” which found that in among working-age persons that year, the disability rate was 12.6 percent for the white population, 17.0 percent for the African-American population, 22.5 percent for the Native American population, 6.3 percent for the Asian-American population, and 11.7 percent for other races.

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70 Erickson and Lee (2008), 22.
The previously mentioned report by Manton and Gu also examined disability trends by racial factors, and found that between 1989 and 1999, disability among the black population decreased significantly faster than for nonblacks, which the authors argue is likely due to a variety of factors, including increasing access to education and Medicare/Medicaid benefits. According to the Census Bureau, over the next 50 years the ethnic distribution of the US population will change dramatically. As shown in Figure IV-4, below, the non-Hispanic white segment of the population will shrink substantially, such that by 2050 they will account for less than 50 percent of the entire population. In contrast, the Hispanic population is expected to increase rapidly in those years. According to a Census report on a previous edition of this data, the growth rates of the Hispanic and Asian populations could exceed 2 percent per year during this time, a rate greater than that of the US during the “Baby Boom.”

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72 Manton and Gu (2001), 6357-6358.
The Census argues that these shifts in racial distribution will largely be caused by three factors: differential fertility, differential net immigration, and differential age distribution within race groups. They explain that:

*Higher fertility rates and net immigration levels would elevate the increased proportions of the expanding groups. At the same time, the non-Hispanic population would experience an increase in the number of deaths as more and more of this population enters older age groups where the risk of mortality is highest.*

Figure IV-5, below, shows the median age for each race group identified by the Census; it shows that, although the median age will increase for all race groups between 2010 and 2050, the non-Hispanic white population will remain, on average, older than all other race groups. The age gap between the non-Hispanic white and the Hispanic population is especially significant. As discussed in previous sections, disability rates tend to be higher among older population than younger. How this interacts with the increasing size of the Hispanic population,

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75 Day (1996), 11.
particularly whether the disability rate within that group changes in coming decades, is still largely unknown. The complex interactions between these demographic markers makes arriving at a clear picture of the future population with disabilities difficult, and leaves considerable room for future research.

Figure IV-5. Projected Median Age By Race, 2010-2050 (Census Data)\(^{76}\)

![Graph showing projected median age by race from 2010 to 2050.]

Income and Poverty

Attempting to describe the income of people with disabilities from a descriptive, demographic perspective rather than as one of several outcomes of employment is a fundamentally difficult task. For most people, earnings represent the largest contributor to household income; since earnings are so closely tied to employment status, it is difficult to discuss income before discussing employment. With these limitations in mind, however, it is possible to arrive at a rough outline of income as a demographic characteristic of the population with disabilities.

In general, those with disabilities have lower average incomes than those without disabilities. An important 1998 study by Kruse found that despite being supplemented by benefits like Social Security, the average household income of people with disabilities was 27 percent lower than that of people without disabilities. This is primarily because the earned income of those with disabilities is, on average, 34 percent lower than that of those without disabilities.\(^{77}\)


More recently, Bjelland et al.’s “2008 Progress Report on the Economic Well-Being of Working-Age People with Disabilities” reported that the median household income of those with disabilities was roughly half that of the nondisabled in 2007, $30,607 compared to $60,009. This relative rate has remained largely unchanged since 2000, according to the authors, fluctuating between .51 and .52 during that period.\(^78\)

There is also considerable data available on the trends of income within the population with disabilities over time. One such 2001 report found that, during the 1980s, the median incomes for both those with and without disabilities were pro-cyclical, or tended to follow broader economic trends. In the 1990s, however, while the median income for those without disabilities remained pro-cyclical, income of those with disabilities broke from the broader economic cycle and continued to drop following the 1989 economic peak.\(^79\)

Another 2001 study, published by Cornell University, found that during the 1980s, median household incomes rose for both disabled and nondisabled men, but not to the same degree. While the household income for nondisabled men rose 9.8 percent, it rose only 1 percent for disabled men. This trend continued into the 1990s, during which time household income rose faster for nondisabled men than for the disabled. This trend also held for disabled and nondisabled women during the 1980s, but during the 1990s, both groups increased in household income at the same rate.\(^80\) Figure IV-6, below, illustrates these trends.

Figure IV-6. Median Household Income By Gender and Disability Status, 1981-2000 (CPS Data)\(^81\)

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\(^78\) Bjelland, Burkhauser, and Houtenville (2008), 10.

\(^79\) Houtenville and Adler (2001), 14-15.

\(^80\) Burkhauser, Daly, Houtenville, and Nargis, Economics of Disability Research #5 (2001), 14.

\(^81\) Ibid., 31.
Economic gaps are especially pronounced when populations are compared by gender, because women are typically found to have lower incomes than men. In a 2004 essay, Lisa Schur addresses this “double disability” by reviewing the literature on women with disabilities, and by examining multiple data sources for her own analysis. She concludes that the “double disability” does exist, as evidenced by the fact that women with disabilities face lower employment and income levels, along with higher poverty levels, than both nondisabled women and disabled men. She also found women with disabilities to be more socially isolated and politically uninvolved than those groups, deepening the effect of disability on their lives.\(^{82}\)

These studies, along with most others on the subject, examine the income of people with disabilities after the disability has occurred. That is, income is viewed as, at least in part, an effect of the disability. Very few studies examine the pre-disability income of those with disabilities, which could provide some insight into the relative prevalence of disability by income. One study of note, however, examines the income of persons with disabilities both before and after the onset of disability.

This 2006 report, by Bruce Meyer and Wallace Mok, was focused on the effects of disability on a range of outcomes, which included income. As such, it does not provide information on the pre-disability income of those with disabilities as compared to those without. In comparing the pre- and post-onset incomes of those with disabilities, however, the authors found that the incomes of those with disabilities actually begins falling before the onset of disability. This can be seen in Figure IV-7, below. The drop in income even before onset is most dramatic for those with severe disability, whose income falls almost 20% in the five years before the disability is incurred. The decline in income before onset of disability may be associated with declining earning for older workers approaching retirement. Further study into the pre-disability income of those with disabilities could provide more insight into the causes for this trend.

In 2004, Harris Interactive conducted a poll of people with disabilities for the National Organization on Disability. Like the previously discussed studies, they found that those with disabilities had lower average incomes than those without. The Harris poll, however, also included questions on savings, assets, and investments. They found that 58 percent of people with disabilities believe they lacked the financial resources to support themselves for more than three months, a far greater proportion than the 36 percent of those without disabilities who responded similarly. Furthermore, those with disabilities are less likely to have investments such as stocks and bonds than those without, although home ownership for both groups remains roughly equal.\(^{83}\)

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83 Krane and Hanson, “2004 Survey of Americans with Disabilities” (2004), 46-47.
These survey findings are related to the numerous studies which show that people with disabilities are more likely to live in poverty than the nondisabled population. In their 2008 report, for example, Bjelland et al. found that the disabled were 3.31 times more likely to live below the poverty line than the nondisabled. This ratio has been increasing for several years, but remains well below the 2000 high mark of 3.68. In his 1998 report, Kruse found that disabled persons were twice as likely to live in poverty than the nondisabled. The rate was particularly high for the severely disabled, of whom 26 percent lived below the poverty line.

Weathers’ 2005 ACS Guide examined data from that survey and found that, while the poverty rate for those without disabilities remained between 7.4 and 7.8 percent in the 2000-2003 period, the rate for those with disabilities varied from 18.6 to 31.1 percent, depending on the type and severity of disability. For example, poverty among those with sensory impairments varied between 18 and 21 percent, while the rate for those with mental impairments was significantly higher, between 27 and 31 percent.

An earlier report by Burkhauser, Houtenville, and Rovba examined poverty among those with disabilities from 1979 through 2000. According to the authors, the poverty rate grew for both the disabled and nondisabled during the 1980s, but more so for the disabled. In fact, the ratio

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84 Meyer and Mok, Disability, Earnings, Income and Consumption (2006), 80.
85 Bjelland, Burkhauser, and Houtenville (2008), 8.
87 Weathers (2005), 53.
of the poverty rate of the disabled relative to that of the nondisabled rose from 3.18 to 3.48 between 1979 and 1989. During the 1990s, however, poverty rate trends were far different for the disabled and nondisabled. Starting in 1993, the poverty rate among the nondisabled fell considerably, but the rate rose among the disabled throughout the decade. Thus, by 2000, the ratio between the populations had risen to 4.13.88

**Education and Other Factors**

A number of other demographic indicators help describe and project the composition of the population with disabilities. These include education, which is closely tied to economic indicators, along with broader social descriptors such as community involvement, political activity, and social isolation. Like income, many of these demographic indicators are inextricably tied to employment. Education, for example, is not only fundamentally tied to the kinds of employment a person is capable of obtaining, but is also a very common component of assistance and rehabilitative programs. Discussions of employment in subsequent chapters will therefore contribute to these demographic considerations, but much can be said regarding the past, current, and future trends within these demographics.

Regarding the education of people with disabilities, the Harris poll discussed above found that, on average, educational attainment for people with disabilities is lower than for those without disabilities. Those with disabilities are much less likely to have gone beyond high school than those without disabilities, 47 percent compared to 60 percent, and are significantly less likely to have finished or gone beyond college, 14 percent to 25 percent.89 This is consistent with findings by Kruse as outlined in a 1998 article, in which the author found that while those without disabilities averaged of 13.3 years of education, those with disabilities averaged 11.9.90

Cornell University’s 2006 *User Guide* to the March CPS similarly reported that those with disabilities tended to be less educated than those without disabilities. According to the authors, 66.7 percent of those with a work limitation had not advanced beyond high school, compared to 47.4 percent of those without a work limitation. In addition, only 23.2 percent of those with a work limitation had at least some college-level education, compared to 52.5 percent of those without a work limitation.91

According to the Harris poll, however, the education gap between those with and those without disabilities has closed considerably in the past two decades. While the education gap between the two populations, measured by how many members had completed only high school, was 24 percent in 1986, it had fallen to 10 percent by 2004. The authors credit this improvement to the implementation of the ADA and similar laws and programs.92 The 2004 educational attainment profiles for people with and without disabilities is summarized in Figure IV-8.

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89 Krane and Hanson (2004), 56.
91 Burkhauser and Houtenville (2006), 45.
92 Ibid., 55.
The precise relationship between disability and education is a complex one, and much remains to be studied before researchers have a comprehensive understanding of it. This is especially true given the general trend in the US towards a workplace with greater educational demands; as the US economy develops into a more technological, services-based marketplace, workers will be expected to have higher levels of education to participate. How this will affect the abilities of those with disabilities to compete is still largely unknown. It may also be the case that higher levels of education make a worker more likely to work in a job with a lower prevalence of disability. For example, office-based telecommunications jobs, which typically require a college education, may have lower disability rates than construction or factory jobs, which require less education. As these types of jobs become more common, the effect on the overall disability rate remains unknown.

The 2004 Harris poll also found significant gaps between the populations with and without disabilities in social and non-economic activities. While a majority of both populations socialize with friends or family at least twice a month, the rate for those with disabilities is 10 percent lower than those without—79 percent to 89 percent. This gap is significantly affected by age, with socialization rates almost reaching parity among 18-29 year-olds. Overall, the socialization gap has remained consistent at 10 percent since 2000.94

Those with disabilities are also less likely to attend religious services than those without, 49 percent to 57 percent, respectively.95 And they are less likely to vote in the presidential election than those without disabilities, though this gap had narrowed significantly by 2004. In 1996, those with disabilities had only a 33 percent voter turnout, compared to the 50 percent rate of

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93 Krane and Hanson (2004), 56.
94 Krane and Hanson (2004), 76-77.
95 Ibid., 81.
those without disabilities; by 2004, this gap had narrowed to only 4 percent, with rates of 52 percent and 56 percent respectively.  

Finally, in terms of overall life satisfaction and quality of life, those with disabilities were less likely to respond positively than those without. Ninety-three percent of those without disabilities expressed satisfaction with life in general, compared to only 74 percent of those with disabilities. More narrowly, though, 61 percent of those without disabilities said they were “very satisfied,” while only 34 percent of those with disabilities responded similarly. and while 75 percent of those without disabilities expected their quality of life to improve in the next four years, only 43 percent of those with disabilities predicted similar improvements, with 41 percent expecting their quality of life to decrease in that span.

One earlier study also examined the social and psychological trends in the population with disabilities, particularly whether and how employment has non-economic benefits for that populace. This study, Schur’s 2002 article, “The Difference A Job Makes: The Effects of Employment Among People with Disabilities,” found that “employment seems to have a stronger effect on several outcomes among people with disabilities.” Economically, employment had a significantly larger impact on the household income of those with disabilities than on household income of those without. Employment also had a slightly larger impact on reducing the poverty rate of those with disabilities.

Finally, employment was found to “play a large role in alleviating social isolation” for people with disabilities, in addition to improving overall life satisfaction and reducing depression. Employment was even found to increase political and civic activity by increasing the person’s perceived abilities and potential for impact on society. Given these findings, Schur concluded that employment is particularly important for those with disabilities because it had such far-reaching benefits, and that the low employment rate of those with disabilities is therefore particularly alarming.

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96 Ibid., 88.
97 Ibid., 90-92.
98 Ibid., 96.
100 Ibid., 5-6.
101 Ibid., 6.
V. Employment Trends and Outcomes

Having outlined the demographic composition of the population with disabilities, and the trends which are likely to affect that composition in the future, we can now turn to an assessment of the employment of workers with disabilities. The study of employment in any population, whether distinguished by disability or any other demographic characteristic, can be broadly divided into the analysis of four primary outcome indicators:

- Labor force participation rate: the percentage of the working age population that is either working or actively seeking work
- Employment rate: the percentage of the labor force that is employed (not generally used by labor economists, this is the complement of the unemployment rate, and is useful for contrasting with the labor force participation rate)
- Weeks worked: average number of weeks worked per year for employed individuals
- Weekly earnings: average weekly earnings for employed individuals

Of these, the first three are the primary tools for identifying the degree to which a population is employed. They allow economists and researchers to determine not only the base number of employed members of the population, but also the length and type of employment most frequent within the population. Weekly earnings, meanwhile, is the most significant of several outcomes of employment, which help indicate what the economic, social, political, and psychological consequences of employment are for the population.

The following section will focus primarily on the current status and historical trends within these key indicators, along with several more specialized indicators, and will serve as the basis for subsequent discussions of how future workplace and demographic trends will affect the employment of people with disabilities. An understanding of how disability affects employability today and in the past will be necessary to project how disability will affect employability in the future.

Labor Force Participation

The most basic measure of employment ability and willingness is the labor force participation rate. It is the ratio of the number of people either working or looking for work divided by the number of people of working age.

Many researchers have examined labor force participation rates among people with disabilities. Some, such as Hale et al., focus on isolated periods in order to produce a snapshot of labor force participation. In their 1998 report, “Labor Market Activity, 1994,” these authors examined SIPP responses from that year and found that the labor force participation rate of the severely disabled was significantly smaller, at only 29.5 percent, than the nondisabled and moderately disabled populations, which were between 81 and 85 percent. That same year, Stephen Kaye found that according to NHIS data, labor force participation for those defined as “limited in

activity” due to an impairment remained consistent between 1990 and 1994 at approximately 52 percent.\textsuperscript{104}

Other researchers studied the labor force participation of people with disabilities within the contexts of broader labor force trends in the US. A 1994 report by Yelin and Katz compared labor force participation trends in the disabled population to those in the nondisabled population between 1970 and 1992. According to Yelin and Katz, trends in the disabled population tended to mirror those in the nondisabled population, which they argue indicates that trends in the disabled population are tied to the mechanics of the overall labor market. Thus, an increase in labor force participation among all women carried over into the disabled population, as did a decrease in participation among all men.

Moreover, such trends tended to be exaggerated in the disabled population, such that those with disabilities experienced larger participation gains than the nondisabled during periods of economic expansion, along with larger losses during economic contraction.\textsuperscript{105} These findings were corroborated in Yelin’s 1997 article, “The Employment of People with and without Disabilities in an Age of Insecurity,” which also reported that participation trends in the overall labor market tended to be amplified within the population with disabilities.\textsuperscript{106}

A 2000 Economic Letter by the Federal Reserve Bank of San Francisco, however, found that during the 1990s, while economic expansion seemed to reach all socioeconomic groups, workers with disabilities were adversely affected. According to the Bank’s findings, during the 1980s the increase in employment during years of expansion generally offset employment declines during recessionary years, but during the 1990s, the employment of working-age men with disabilities fell continuously. While substantial increases in disability transfer income replaced a significant fraction of the lost labor earnings, it did not prevent most of the households of men with disabilities from being worse off than their counterparts.\textsuperscript{107}

More recently, a 2004 report by Hotchkiss attempted to explain the reported decline in labor force participation among the disabled. Hotchkiss examined responses to both the CPS and SIPP and found that the employment probability of disabled people relative to the nondisabled remained largely unaffected throughout the 1990s. Hotchkiss therefore argues that the observed decline in labor force participation among the disabled during the 1990s was the result of changing definitions of disability during that time, which caused workers previously considered nondisabled to be reclassified as disabled.\textsuperscript{108}

Stephen Kaye’s 2003 study of NHIS and CPS data, however, found that while both surveys saw an increase in nondisabled labor force participation, from 82 percent in 1991 to 83.5 percent in 1996 in the NHIS, and from 79.6 percent in 1994 to 81.7 percent in 2000 in the CPS. Among the disabled, however, there was no such trend; according to NHIS data, labor force participation

\textsuperscript{106} Yelin, “Employment In An Age Of Insecurity” (1997), 117-128.
\textsuperscript{107} Daly, Burkhauser, and Houtenville, Recent Declines in Work and Income (2000), 1-4.
\textsuperscript{108} Hotchkiss, “Closer Look At The Impact of the ADA” (2004), 909.
never rose above the 1992 “recession value” of 51.5 percent, while the CPS showed the previously-discussed downward trend, from 28.6 percent in 1994 to 25.2 percent in 1999.\textsuperscript{109}

Finally, Cornell’s examination of the 2007 ACS found that 42.2 percent of people with disabilities were either employed or actively looking for work, compared to 83.8 percent of those without disabilities.\textsuperscript{110} The noticeably large number of nondisabled labor force participants may be partly explained by the fact that this number was created by adding the number of employed persons to the number of non-employed persons who have actively sought employment for the previous four weeks, a number which is not necessarily identical to the traditional calculation of labor force participation.

**Employment Rate**

Within the discussion of labor force participation, which includes those who are currently unemployed but are actively seeking work or were recently laid off, a great deal of research has been done focusing specifically on the employment rates of those with and without disabilities. While there continues to be much debate over the causes, most researchers have reached a consensus that the employment rate of those with disabilities decreased during the 1990s, even while overall employment rates rose.

There are a number of ways of calculating the employment rate, also sometimes referred to as the employment population ratio. The standard method is to use the population as the denominator and the number of individuals who are employed as the numerator. In their 2008 Progress Report, however, Bjelland and Burkhauser use the number of people age 21-64 (i.e., the working age population) as the denominator, based on CPS data. The rate they calculate therefore includes many who are not participating in the labor force for a variety of reasons, such as discouragement due to not being able to find a job, those who are in school, those who are disabled, as well as those who are independently wealthy (although this number is very small). Based on these calculations, they found that in March 2008, the employment rate of working-age people with disabilities was 17.7 percent, a slight decline from 2007’s mark of 18.7, and far below the 1989 peak of 28.8 percent.\textsuperscript{111}

In 1998, Stephen Kaye compared CPS and SIPP data during the early 1990s. According to CPS data, which focused on people with a work disability, that population’s employment rate remained between 28 and 29 percent between 1990 and 1994. SIPP data showed similar consistency for the overall disabled population during this period, remaining near 48.6 percent from 1991-1994. However, according to the SIPP, the employment rate for those with severe disabilities rose in this time from 27.6 percent to 32.2 percent.\textsuperscript{112}

Five years later, Kaye performed a more extensive study of multiple sources for the National Institute on Disability and Rehabilitation Research. As shown in Figure V-1, below, neither the

\begin{itemize}
  \item \textsuperscript{109} Kaye (2003), 10.
  \item \textsuperscript{110} Erickson and Lee (2008), 26.
  \item \textsuperscript{111} Bjelland, Burkhauser, and Houtenville (2008), 4.
  \item \textsuperscript{112} Kaye (1998), 2-3.
\end{itemize}
NHIS nor the CPS showed a statistically significant trend in employment rate during their respective periods. According to the NHIS, employment among the disabled varied between 49 percent in 1989 and 47 percent in 1992, while the CPS-indicated level remained near 24 percent for the entire 1994-2000 period. The most noticeable trend in this data set is the gulf between the disabled employment rate reported by each data set. According to Kaye, the NHIS definition of disability is much broader than the CPS definition, which is confined to those with a work-limiting disability.\textsuperscript{113}

**Figure V-1. Employment Rate By Source and Disability Status, 1988-2000**\textsuperscript{114}

A 2004 report by Burkhauser, Houtenville, and Stapleton similarly examined data from multiple sources, particularly the CPS and NHIS, to determine whether the reported decline in employment rates among the disabled was due to the definitions of individual surveys. While acknowledging that the definition of disability used by the CPS is “problematic,” the authors find that the 1990s’ decline in employment among the disabled is corroborated by the NHIS and SIPP.\textsuperscript{115}

Other studies corroborate the finding that employment of the disabled fell during the 1990s. In 2001, Burkhauser, Daly, et al. examined March CPS data for employment and economic outcomes among the disabled. They found that during the 1980s, employment among people with and without disabilities was procyclical, declining during periods of recession and rising during periods of recovery. During the 1990s, however, the groups diverged—while

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\textsuperscript{113} Kaye (2003), 9.
\textsuperscript{114} Ibid., 9.
\textsuperscript{115} Stapleton, Burkhauser, and Houtenville, *The Employment Rate of People with Disabilities* (2004), 1-3.
employment among those without disabilities remained procyclical, employment of those with disabilities began falling during the recession of the early 1990s, and continued to fall even during periods of recovery.\textsuperscript{116} Due to the CPS’s weakness as a source of disability data, the authors compared these findings to NHIS data, and found the patterns remained.\textsuperscript{117} The authors had previously published similar findings in an economic letter for the Federal Reserve Bank of San Francisco.\textsuperscript{118}

Studies that focus on local- or state-level surveys have also found that employment rates for people with disabilities have declined in recent decades. In a 2003 article titled “Disability and the Characteristics of Employment,” Yelin and Trupin examined the California Work and Health Survey, which they note combines advantages from both Federal health and labor surveys. Their results were “consistent with those of other studies in showing substantially lower employment rates among persons with disabilities,” despite an otherwise strong economy and labor market. Even after controlling for other factors, the authors found that employment rates for the disabled remained lower relative to the rest of the population.\textsuperscript{119}

More recent data has shown that while the employment of those with disabilities remains below that of those without disabilities, it may now be higher than it was during the 1990s. When examining data from the 2007 ACS, researchers at Cornell University found that those with disabilities had an employment rate of 36.9 percent, while those without disabilities were employed at a rate of 79.7 percent. Within the disabled population, employment was highest for those with a sensory impairment (46.4 percent) and lowest for those with a self-care impairment (16.7 percent).\textsuperscript{120} The ACS uses a different definition for disability than the CPS or NHIS, however, making firm conclusions about recent employment growth impossible.

Employment opportunities for severely disabled veterans is of interest in both the Federal government and in contracting by the Federal government. The most recent report by the Office of Personnel Management is for FY 2007 and indicates an increase in Federal non-postal workers who are disabled veterans rated 30% or higher from 2.0 percent in 2003 to 3.1 percent in 2007.\textsuperscript{121} By far the greatest portion of these workers (43.5%) are in administrative occupations.\textsuperscript{122} Among new hires, the proportion of disabled veterans rated 30 percent or higher increased from 2.0 percent to 3.5 percent from 2003 to 2007.\textsuperscript{123} The threshold for preference is statutorily set at 30%. However, statistical information on disabled veteran employees by individual rating levels is not available.

\textsuperscript{116} Burkhauser, Daly, Houtenville, and Nargis (2001), 11-12.
\textsuperscript{117} Ibid., 18.
\textsuperscript{118} Daly, Burkhauser, and Houtenville (2000).
\textsuperscript{119} Yelin and Trupin (2003), 23.
\textsuperscript{120} Erickson and Lee (2008), 24.
\textsuperscript{122} Ibid., 16.
\textsuperscript{123} Ibid., 21.
Weeks Worked

While employment rate and labor force participation are valuable indicators, they alone do not provide sufficient information on a population’s employment status. Two individuals who work 52 weeks and 40 weeks respectively cannot be said to have the same degrees of involvement in the labor market. Yet they both are considered equal when tallying the employment or unemployment rate. Labor economists often turn to more sensitive measures, such as the distinction between part-time and full-time, or for even better granularity, the number of weeks worked. Because weeks worked is a more sensitive measure, we expect to see more variation in it than in the employment rate.

For example, Acemoglu and Angrist show mostly declining average weeks worked beginning in 1989 for workers with disabilities between 21 and 39 years of age. The authors also found a dip in weeks worked for disabled men aged 40-58 beginning in 1992, with recovery in 1993. Weeks worked for nondisabled men was less volatile, but showed a dip and recovery in 1992. There was volatility in the employment of both men and women with work-related disabilities.\textsuperscript{124}

Beyond these few sources, however, there is little information on the weeks worked by those with and without disabilities. Without further research into this area, it will be difficult to adequately compare the employment situation for each population.

Work Schedule and Non-Standard Employment

In addition to employment status and total weeks worked, another important employment indicator is the type of work schedule that a particular group is likely to choose or be compelled to have. This is particularly true when comparing full-time to part-time employment, because part-time employees tend to have lower wages and receive fewer benefits than full-time workers. A discussion of the trends, causes, and effects of work schedule for workers with disabilities will follow in the next chapter; for the present, this section will focus on work schedule as an overall indicator of the employment of those with disabilities.

Erickson and Lee’s examination of 2007 ACS data, for example, found that only 21.2 percent of the disabled, working-age population was employed full-time, compared with 56.7 percent of the nondisabled, working age population.\textsuperscript{125} Several other studies have also been released that focus specifically on part-time and otherwise “non-standard” employment in the disabled population. In 2002, two studies on this topic were released. One, by Schur, found that within the employed segments of both populations, people with disabilities were more likely to work nonstandard hours, such as non-day or rotating shifts.\textsuperscript{126} The second study, however, by H.B. Presser and B. Altman, found that there is little overall difference in shifts worked between disabled and nondisabled populations, though minor differences are found when the populations are broken out by gender.\textsuperscript{127}

\textsuperscript{124} Acemoglu and Angrist, “Consequences of Employment Protection?” (2001), 930.
\textsuperscript{125} Erickson and Lee (2008), 28.
\textsuperscript{126} Schur, “Dead End Jobs” (2002), 605.
\textsuperscript{127} Presser and Altman, ”Work Shifts and Disability” (2002), 14.
Earnings gaps are discussed in greater detail below, but it should be noted that both Schur and Presser/Altman examined the effects of nonstandard employment on workers with disabilities’ earnings, so as to determine whether working nonstandard hours offers financial benefits to these workers. Both found no such benefit. Even after controlling for other factors, such as occupational field, Schur and Presser both found that workers with disabilities earned less, even in hourly wages, than nondisabled workers across all work schedules.\textsuperscript{128}

This is not to say that nonstandard work is detrimental to workers with disabilities. In a 2004 Economic Review for the Federal Reserve Bank of Atlanta, Hotchkiss found that nonstandard work among workers with disabilities is largely voluntary, which she argues is most likely due to the need for accommodations to be made to health issues related to disability, and to other fiscal concerns such as Federal benefits.\textsuperscript{129} This mirrors a 2003 report by Schur, in which the author concluded that workers with disabilities who choose nonstandard employment do so out of a need for flexibility due to their disability.\textsuperscript{130}

**Labor Mobility**

Studies have also focused on the mobility of workers with disabilities within the work force, both voluntary and involuntary. In their 2003 examination of the California Work and Health Survey, Yelin and Trupin found that workers with disabilities were twice as likely to have experienced a job loss in the previous year, indicating that even after obtaining employment, workers with disabilities tend to have less secure employment than their nondisabled counterparts.\textsuperscript{131}

A 2002 study by Baldwin and Schumacher focused more specifically on job mobility trends in both the disabled and nondisabled populations, and similarly found that workers with disabilities experienced a higher rate of involuntary turnover than workers without disabilities. They also found that there was little difference in the overall job mobility of both groups. They therefore conclude that workers with disabilities face greater challenges in obtaining suitable employment than the nondisabled, and that the higher turnover rate is indicative of mismatched employment. Once employment is obtained, however, the disabled and nondisabled populations experience similar job mobility.\textsuperscript{132}

In 1996, Pan Kim examined the employment of workers with disabilities, focusing particularly on employment within the Federal government. He found that disabled employees had lower promotion rates than workers without disabilities, and had been “losing ground” to the nondisabled. The promotion rate for those with “reportable” disabilities according to the ADA was 2 to 4 percent lower than the total workforce, while the rate for those with disabilities targeted by the ADA was up to 7 percent lower.\textsuperscript{133} Kim goes on to cite an earlier report by Lewis

\textsuperscript{128} Schur, “Dead End Jobs” (2002), 607; Presser and Altman (2002), 20.

\textsuperscript{129} Hotchkiss, “Growing Part Time Employment” (2004), 15.

\textsuperscript{130} Schur, “Barriers or Opportunities?” (2003), 617.

\textsuperscript{131} Yelin and Trupin (2003), 26.

\textsuperscript{132} Baldwin and Schumacher, “A Note on Job Mobility” (2002), 440-441.

\textsuperscript{133} Kim, “Analysis of the Employment of People with Disabilities” (1996), 82.
and Allee, which similarly found that disabled employees were less likely to be promoted than nondisabled employees at similar grade levels, and that the issue was more pronounced for those with severe disabilities.\textsuperscript{134}

**Earnings**

One of the most important employment outcome measures is average weekly earnings, a measure conditioned on employment. Average weekly earnings is somewhat different if individuals who are not in the labor force are included, and more different still if individuals who are not employed but in the labor force are included. These two measures are most commonly used to develop a picture of the population at large; for the purposes of examining employment itself, as this report does, economists typically use the average earnings of the employed population.

For the most part, researchers have found that workers with disabilities tend to earn less than their nondisabled counterparts, though there is disagreement over the causes of this gap. From a purely mechanical standpoint, those with disabilities participate in the labor force at lower rates, have lower employment rates, work fewer weeks per year, and earn less for each week worked. These mechanical facts, however, do not entirely explain “why” the final statement is true. Is it due to lower productivity, wage discrimination, or other factors?

The issue of discrimination by employers is discussed in the next section. Even when not addressing discrimination per se, however, researchers have continued to find a gap in earnings between workers with and without disabilities. For example, in their 1998 article, “Labor Market Activity, 1994,” Hale et al. found that the mean monthly earnings of workers with both moderately and severe disabilities were significantly lower than those of workers without disabilities.\textsuperscript{135} According to the authors, this is largely because workers with disabilities are less likely to be highly educated, and are therefore typically restricted occupationally.\textsuperscript{136} A 2000 report by Haveman and Wolfe further found that workers with disabilities who were nonwhite or low-educated “experienced far more earnings erosion over the 1967–1987 period relative to those of their counterparts without disabilities” than workers with disabilities who were white or more highly-educated.\textsuperscript{137}

\textsuperscript{135} Hale, Hayghe, and McNeil (1998), 9.
\textsuperscript{136} Ibid., 10.
VI. Employer Demand and Workplace Trends

The ongoing, dramatic changes to the US labor market and workplace have been well-documented and commented upon, not only by researchers and academics but even in the mainstream media. Many of these trends interact with each other in complex ways: globalization broadens the market for US goods and services, but also opens up new labor pools and facilitates outsourcing; technological advances increase productivity and allow workers to work outside the office, but can also eliminate jobs by replacing human workers with more efficient technology; an increasingly educated, service-based workforce can be more flexible in finding the ideal employment situation, but this can limit the opportunities open to those without the requisite education or skills.

While many of these trends and issues have been carefully examined, how they will affect those with disabilities remains much more uncertain. Following a research summit on employer demand, the Interagency Committee on Disability Research’s Subcommittee on Employment issued a 2006 report which argued that such demand-side, or employer-side, research would focus “on factors that affect employment practices,” including “the size, culture, and goals of organizations that already employ or may hire people with disabilities.”138 That report also outlined several areas in need of more study, including:

- The projected skills which will be required of the future workforce
- The present and projected future demand for labor
- The shift of work away from manufacturing toward the service sector
- The rising role of “knowledge workers” in an era increasingly dominated by computers and the need for creative problem-solving skills
- Increased demand for temporary workers and telecommuters facilitated by developments in computer technologies. It may be easier to find jobs, but workers are at greater risk of losing jobs because of possible layoffs, outsourcing, and downsizing.

This research would not only enhance our academic understanding of how to effectively encourage employers to hire workers with disabilities, it would itself provide this encouragement to employers. According to the keynote speakers at the conference, the absence of a substantial body of research on employer demand has had a negative impact on employment for those with disabilities. Neil Romano, the summit’s first keynote speaker, argued:

*To generate employer demand, these communities need to generate a belief that people with disabilities can contribute as employees. To generate that belief, they have to show the business community that people with disabilities add value to the workplace. This has to be done through research.*139

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Romano claimed that there is an underlying desire on the part of employers to hire workers with disabilities, but that they lack the quantitative justification that research would provide. The second keynote speaker, Charles A. Riley, similarly argued that “the chief obstacle” preventing employers from actively seeking to hire workers with disabilities “is lack of data.” He says that providing employers with research into the benefits of hiring workers with disabilities, particularly within the context of broader trends like the transition to a service-based economy, would substantially increase the employment of those with disabilities.140

While the body of research directly related to employer demand for workers with disabilities continues to be relatively small, the following sections will discuss available literature on topics associated with demand and workplace factors, particularly those factors that inhibit or interfere with employer demand for workers with disabilities, along with those programs and strategies which have been developed to address them.

**Distinguishing Supply and Demand Effects**

It is useful to draw a distinction between supply and demand trends affecting the employment of people with disabilities, but it is also important to recognize the limitations inherent in such distinctions. At its simplest, demand is the number of workers that employers are willing to hire at a given offer wage, and supply is the number of workers who are willing to be hired at a given reservation wage. But, it is not necessarily that simple. There is a single job market, not two separate markets for workers with and without disabilities. There is a single set of workers with a continuum of abilities and disabilities, not two different sets.

While analysts might prefer the simplicity of disabled versus nondisabled, the fact is that for any given job, all applicants can be ranked using a variety of criteria that encompasses not only disabilities, but training and experience as well. While certain physical attributes might render a given applicant less qualified for a given job than someone without those attributes, their training and experience might more than compensate for the disability. Ultimately, the employer ranks and weights all of the attributes of all applicants for any given position and then makes a decision based upon the available information, filtered by their own expectations and prejudices. In the interactions between the forces of supply and demand, it is not always easy to separate the two or to determine the causes underlying any identified trend.

Consider discrimination, for example. If employers discount the applications of people with disabilities and they in turn stop applying because they know their applications will be discounted, we see a reduction in the labor force participation rate. What appears to be a supply effect ultimately is caused by a demand effect. Looking at employer behavior, discrimination is a demand-side factor. Looking at the individual’s behavior, it is ultimately a supply issue.

Such supply and demand effects are very difficult to sort out, largely because they are not independent.

Present and Future Demand for Labor

In an article in the September 2009 Monthly Labor Review, Kruse and Schur match BLS occupational projections for 2006-2016 to Census data on disability prevalence and O*Net data on job ability requirements to estimate, first, the expected employment rate of individuals with disabilities if current trends hold true, and second, the potential for increased job growth for those with disabilities based on the ability requirements of different kinds of jobs.141

In doing so, Kruse and Schur found that people with disabilities are projected to have a lower job growth rate than the population without disabilities, at only 9.7 percent compared to 10.4 percent. This is largely because those with disabilities “are not distributed proportionately across occupations, being underrepresented in faster-growing occupations and overrepresented in slower-growing occupations.”142 They estimate that correcting the disproportionate growth distribution would create 79,000 additional jobs for those with disabilities by 2016.143

Kruse and Schur next broke down the ability requirements for each occupation in order to project which fast-growing fields are most likely to provide opportunities for advances in the employment of those with disabilities. The authors found that there will be five million or more jobs created in fields in which cognitive abilities like quantitative analysis and memory are of low importance, providing opportunities for those with cognitive impairments. They also found that psychomotor and physical abilities are of low importance for many fast-growing occupations, representing significant room for growth for those with physical impairments.144

Kruse and Schur conclude that though current trends would indicate a slower than average job growth rate for people with disabilities, there is significant potential for growth in occupations that do not preclude those with physical or cognitive impairments. The authors also note that their analysis of occupations by ability requirements likely underestimates potential for those with disabilities because it does not take into account corrective technologies, which could allow employers to make accommodations for workers with disabilities.145

The 2008 JOLTS results, however, suggests at least two problems. In the May 2009 issue of the Monthly Labor Review, Katherine Klemmer reported declining job openings and hires in 2008—effects of the current recession, summarized in part in Figure VI-1.146 The first issue is that projections based on data derived prior to the current recession would need substantial revision. Hence, the numbers provided by Kruse and Schur are most certainly far too optimistic.

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141 Kruse and Schur, “Projecting Potential Demand” (2009), 3-5.
142 Ibid., 5-6.
143 Ibid., 6.
144 Ibid., 9.
145 Ibid., 15-16.
146 Klemmer, “JOLTS Annual Story” (2009), 32-44.
Second, little is known definitively about how the demand for employees with disabilities will fare relative to the demand for people without disabilities. Our own review of CPS trends suggested that in times of downturn, employment outcomes for those with disabilities are not identical with those of people without disabilities. If people with disabilities were among the most recent hires, then seniority rules might allow them to be the first to let go in times of downturn. Further, if employers make decisions based upon productivity expectations, then people with disabilities could further be affected adversely relative to people without disabilities. Clearly, much more research is needed to fully understand how bust-and-boom cycles affect the demand for workers with and without disabilities.

In a 1996 article in the *Journal of Econometrics*, Stern adapted the semiparametric methods of Ichimura and Lee (1991) to decompose the effects of disability on labor force participation into a demand and supply effect. The demand effect is reflected in the wages that an employer is willing to pay a given potential employee to do a given job. The supply effect is reflected in the

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reservation wage, which is the lowest wage for which a member of the labor force is willing to perform a specific job. Disabled workers have lower expected wages due both to lower rates of productivity as well as limits in the kinds of tasks they can perform.

At the same time, Stern reasons that disabled workers may have relatively higher reservation wages because work represents greater disutility (i.e., it is harder for those with disabilities to go to work), because disability payments are sometimes contingent upon not working, and because there are fewer work environments in which they can function effectively. If the offered wage is greater than or equal to the reservation wage, then an individual will decide to work.

Stern used the 1981 cross-section of the Panel Study on Income Dynamics (PSID). He concluded that supply factors (such as the availability of aid and assistance programs, the availability of disability payments, and the willingness of governments to pay for assistive/adaptive technology) have much greater effects on the labor force participation of people with disabilities than demand factors do. This translates into high efficacy for efforts to improve accessibility of transportation and other forms of assistance in increasing the success of those with disabilities in the labor market. Stern does not, however, make any attempt to do a cost-benefit analysis. Therefore, it is possible that the economic cost of outlays to make the labor market more accessible might exceed the pure economic benefits derived from increased and improved participation. Of course, both the economy and disability policy have changed considerably since 1981.

Stern argues that different government policies and programs can have differing and contrasting effects on supply and demand—particularly on supply. Income supplement and maintenance programs that tie benefits to non-work have the effect of decreasing the labor force participation rate of people with disabilities, as well as increasing their reservation wage. This makes people with disabilities less likely to find work at an acceptable wage. On the other hand, programs that better equip people with disabilities to integrate into society and to adapt to jobs make it easier to work and thereby can lower the reservation wage. This has the effect of increasing the labor force participation rate and making finding an acceptable job more likely.

Stern demonstrated five different “policy experiments” to determine what kinds of policies have the greatest impact on improving the employment prospects for people with disabilities. He found that the largest impact could be made through the supply side, by reducing the effect of disability on people with disabilities. He concluded that policies that affect the work propensity (measured using a supply index) of people with disabilities are much more cost effective and efficient than policies that attempt to influence demand.

While Stern concluded that the supply side appears more important than the demand side, he was simply comparing equivalent one-unit changes in his supply index and demand index. As he notes in his conclusion, the supply programs may have very little effect on the index, or come at

\[ \text{\textsuperscript{149}} \text{Stern (1996), 49-70.} \]
a great cost. Demand programs may move the demand index more easily and thereby have a bigger effect.

**Workforce Skills**

As the economy and the nature of employment in the US changes, so too will the skills employers demand from workers. In very broad terms, whereas a manufacturing-focused economy may value on-the-job technical knowledge and experience, a more services-oriented economy will demand more formal education from workers. In recent years, the technological and educational demands of even entry-level jobs have increased, and this trend is likely to continue. According to recent BLS projections, the fastest growing industry over the next decade will be “management, scientific, and technical consulting services,” a field with significant educational and skills demands.\(^{150}\)

Figure VI-2, below, highlights the occupations projected by the BLS to experience the most dramatic growth or decline rates in the next ten years, and illustrates the training and education requirements of those occupations. As the figure makes clear, none of the fastest-declining occupations require secondary education, but three-quarters of the fastest-growing occupations require some form of advanced education.

**Figure VI-2. Training and Education Requirements of Future Occupations By Growth Rate (BLS Data)**\(^{151}\)

In fact, the majority of the fastest growing industries over that period, which include health care providers, architects and engineers, and software designers, require substantial amounts of education and highly-developed skills from their workers. By comparison, the industries

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\(^{151}\) Kruse and Schur (2009), Tables 2-3.
which will decline the most in this period are all manufacturing-oriented jobs which do not often require their workers to pursue higher education or advanced technical degrees.\footnote{Figueroa and Woods (2007), 58-59.}

The trend toward a more highly educated workforce is not exclusively the result of the transition from manufacturing to service. The ubiquitous proliferation of technology, from desktop computing to telecommunications devices, in nearly every major industry forces workers to become technologically proficient and flexible. Just as this technology opens up new opportunities for workers, such as the ability to develop a flexible working schedule and work from home, it also requires workers to develop and maintain the ability to use and adapt to new technology almost constantly.

These trends could be both beneficial and damaging for prospective workers with disabilities; increased educational demands puts such workers, who typically have less education than those without disabilities, at a disadvantage, but technological advancements also provide those with disabilities with new, more effective adaptive measures. Understanding how these demand-side trends will affect workers with disabilities is fundamental to developing a strategy for improving the employment of this population.

In their 1995 working paper for NBER, Krueger, Kruse, and Drastal looked at the labor market effects of severe, traumatic disabilities resulting from spinal cord injuries (SCI). They found that workers who use computers at work have higher wage rates on average than users who do not. They also found no wage discrimination gap between computer-user workers with and without SCI. They found that workers with SCI are less likely to use computers than workers without SCI. The clear implication is that with the demand for computer-literate workers increasing, outcomes for people with SCI-based disabilities potentially can be improved by equipping them with computer skills.\footnote{Krueger, Kruse, and Drastal, “Labor Market Effects of Spinal Cord Injuries” (1995), abstract.}

In a 2003 study, Autor and Duggan looked at the complex interaction between the decline in demand for lower-skilled workers and increase in the numbers of non-elderly individuals receiving SSDI payments.\footnote{Autor and Duggan. “The Rise in the Disability Rolls” (2003), 157-205.} In 1984, screening requirements to qualify for SSDI payments were reduced. Between 1978 and 1998, the proportion of non-elderly receiving SSDI increased dramatically. At the same time, the effective earnings replacement rate also increased, making SSDI an increasingly attractive alternative to low wage jobs, and the demand for low-wage workers was declining. These three factors combined to reduce the labor force participation rate for lower-skilled workers, such as high school dropouts. Autor and Duggan further say that data trends suggest that there will be a further increase in non-elderly SSDI recipiency.

In a contribution to a 2003 book titled \textit{The Decline in Employment of People with Disabilities}, Stapleton, Goodman, and Houtenville examined whether broad recent changes in the labor market had affected the employment prospects of people with disabilities. They conclude that “changes in the nature of work and the labor market cannot account for much of the decline” in
employment of those with disabilities.\textsuperscript{155} They argue that most of the observable trends impacting the employment of those with disabilities, including the widespread growth in skill requirements and within-occupation changes in requirements, are slow long-term trends that do not fully account for the otherwise rapid decline in employment.\textsuperscript{156} Therefore, while labor market changes may affect disability employment in as-yet unmeasured ways, the authors conclude that such changes do not fully explain the observed trends in employment of people with disabilities.

**Global Changes and Trends**

The literature available on what changes and trends the global economy and labor force are expected to undergo in the future is far too extensive for this review. There are, however, several primary topics which should be noted as of particular importance to the demand workers with disability. Chief among these are globalization and the subsequent outsourcing and/or offshoring of labor, two widely-cited international trends.

Globalization is actually an umbrella term which encompasses a broad range of trends and policies, including “the expansion of world trade, communication, immigration, capital flows, and multinational business activity.”\textsuperscript{157} Broadly speaking, free trade policies and the advancement of technology have led, and are expected to continue to lead, to increased globalization. The precise effects of this globalization, however, are far less clear.

Many economists favor open trade and globalization because of the common argument that it raises real incomes for all involved. Indeed, the World Bank has estimated that a single international free trade agreement could result in $100-200 billion for consumers.\textsuperscript{158} This is, however, overly simplistic; because of the complexity of the issue, there is little data on the precise impacts of globalization, particularly in its distribution to various subpopulations. That is, it is entirely possible that while the net effect of globalization and open trade is positive, the effects for low-wage or unskilled workers is negative.

This latter topic is one of the primary concerns of globalization’s opponents, and also the effect most likely to impact workers with disabilities who, for a variety of reasons discussed above, tend to earn less and obtain less education than those without disabilities. The fear is that by opening competition for jobs and goods to nations with cheaper labor than the US, American workers will lose jobs or see a reduction in wages as the cost of labor in the two places converge.\textsuperscript{159}

One review of the available literature on wage differentials and globalization found:

\begin{itemize}
  \item \textsuperscript{155} Stapleton and Burkhauser, *Decline In Employment* (2003), 160.
  \item \textsuperscript{156} Ibid., 161.
  \item \textsuperscript{158} Ibid., 61-62.
  \item \textsuperscript{159} Ibid., 67.
\end{itemize}
...a wide divergence across studies in the proportion of the increased differential attributed to the growth in [international] trade. Examples of studies concluding that trade exerted at most a minor (zero to 10-20 percent) impact on wage differentials include Lawrence (1996), Baldwin and Cain (1997), and Krugman (1995), while Wood (1994, 1995), Leamer (1998), and Sachs and Shatz (1998) argue for substantial (over 20 percent) impacts from trade alone.\textsuperscript{160}

This represents only a small snapshot of the literature available at the time, but is indicative of the controversy and uncertainty surrounding this issue. Ultimately, the authors of the review found that “the evidence for large impacts of globalization on wage differentials and wage inequality is limited.”\textsuperscript{161}

The potential for a loss of low-wage employment in the US as a result of globalization can be seen in Kruse and Schur’s 2008 analysis of future employment trends for workers with disabilities. In this article, the authors examine current and projected future participation by workers with disabilities in the occupations projected to grow fastest and slowest in the next decade by the Bureau of Labor Statistics. They found that “people with disabilities are underrepresented in 17 of the top 20 fastest-growing occupations,” and are also “overrepresented in 18 of the top 20 declining occupations.”\textsuperscript{162}

As seen in Figure VI-2 above, the education and training requirements for these occupations vary significantly. While 65 percent of the fastest-growing occupations require at least some post-secondary education, none of the fastest-declining occupations require more than on-the-job training. Such rapid declines in occupations with low education requirements may be indicative of globalization’s effects, and the subsequent shift of such employment from the US to other nations with lower labor costs. Because workers with disabilities are overrepresented in these occupations, the consequences for future demand for them may be significant.

These trends are further complicated by the increase in higher education in the developing world. Between 1990 and 2005, the US share in global enrollment in higher education fell from 20 to 13 percent, despite the fact that the total number of enrollments in the US actually rose from 13.7 million to 17.3 million. The US’ decline relative to the global total is due to the rapid rise in enrollments in the developing world; its share rose from 61 to 72 percent in that period, with China’s share rising from 6 to 16 percent, and India’s from 7 to 9 percent.\textsuperscript{163} How this will affect the occupational trends just discussed remains largely unknown.

**Workplace Discrimination**

An early pair of studies by Baldwin and Johnson looked at wage discrimination against men and women with disabilities. In their 1993 “Labor Market Discrimination against Men with

\textsuperscript{160} Ibid., 70.

\textsuperscript{161} Lerman and Schmidt (1999), 72.

\textsuperscript{162} Kruse and Schur (2009), 6-7.

Disabilities,” Baldwin and Johnson used SIPP data to estimate the extent of labor market
discrimination against men with disabilities, using human capital factors to control for
productivity.\textsuperscript{164} They classified disabilities as impairments subject to prejudice (handicapped)
and those that are less subject to prejudice (disabled), relying on 1980 World Health
Organization (WHO) definitions to make distinctions among three key concepts:

An \textit{impairment} is a psychological, anatomical, or mental loss, or some other
abnormality. A \textit{disability} is any restriction on, or lack of, ability to perform an
activity in the manner or within the range considered normal. A \textit{handicap} is a
disadvantage resulting from an impairment or a disability.

They found “very large differences” in employment rates and hourly wages between
handicapped and nondisabled men. They found that employment rates and hourly wages of
disabled men were slightly lower than those of nondisabled men, but substantially higher than
those of handicapped men. In a 1995 study of women also using data from the early 1980s,
Baldwin and Johnson similarly found evidence of wage discrimination that was not based on
productivity, but the effects were much smaller than for men. They found large employment
rate effects of disability, but only a small part of the differential was attributable to the
disincentive effects of wage discrimination.\textsuperscript{165}

Revisiting the question of discrimination in a 2000 article, Baldwin and Johnson used 1990 data
to assess the extent of wage discrimination against men with disabilities, providing a reference
intended to be used to evaluate the impact of the ADA. As was the case using data from the
early 1980s, they found large productivity-standardized wage differentials between disabled
and nondisabled men, but that the differences were only weakly correlated with the strength of
prejudice against different impairments. Physical limitations explained part but not all of the
wage differentials. At the same time, their results showed that low employment rates were a
much more serious problem than wage discrimination.\textsuperscript{166} Left unanswered was the question of
whether prejudice is a factor in hiring decisions, apart from productivity issues, or whether low
employment rates were more supply driven than demand driven.

In her 2000 paper, Christine Jolls used variation in pre-ADA state laws to attempt to
disaggregate the disabled employment effects of the two main provisions of the ADA—the
reasonable accommodations requirement and the traditional antidiscrimination prohibition
with attendant firing costs. She found “strong evidence” that immediate post-ADA enactment
drops in employment of people with disabilities were attributable to the “reasonable
accommodation” requirement for people with disabilities, rather than due to potential firing
costs employees with disabilities. That is, rather than people with disabilities being terminated,
employers instead reduce hiring of people with disabilities. Patterns in across-state variation

also suggested that declining employment for people with disabilities after the immediate post-ADA period reflected other factors other than the ADA itself.

In 2000, DeLeire published an article titled, “The Wage and Employment Effects of the Americans with Disabilities Act.” In it, DeLeire examines responses to the SIPP and finds that after 1990, the employment rate of disabled men fell 7.2 percentage points relative to the employment rate of nondisabled men.\textsuperscript{167} This employment decrease continued from 1990 through 1995 when his study period ended. DeLeire also found that during this period the relative wages of disabled men remained unchanged in comparison to those of nondisabled men.\textsuperscript{168}

The following year, Acemoglu and Angrist published their article, “Consequences of Employment Protection? The Case of the Americans with Disabilities Act,” which has since become one of the most important articles on this topic. After studying the CPS March Supplement for 1988-1997, Acemoglu and Angrist found a “decline in the relative employment of disabled men and women aged 21-39, with no change in relative wages.”\textsuperscript{169} This decline began in 1992-1993, and continued through the survey period. Acemoglu and Angrist also noted that the decline was sharpest in medium-sized firms, and that separation rates for workers with disabilities remained largely unchanged in this period.\textsuperscript{170}

Both DeLeire and Acemoglu & Angrist argue that the employment rate declines they observed were due to the ADA. A subsequent report, published in 2004 by R.V. Burkhauser and D. Houtenville, titled “Did the Employment of People with Disabilities Decline in the 1990s, and Was the ADA Responsible? A Replication and Robustness Check of Acemoglu and Angrist,” attempted to replicate Acemoglu and Angrist’s study of the CPS March Supplement. In doing so, the authors expanded their analysis to include the Matched CPS two-period definition of disability, in order to narrow the results down to those with long-term impairments.\textsuperscript{171}

Like the earlier studies, Burkhauser and Houtenville found that employment rates among the disabled fell during the 1990s. But by using the two-period definition of disability, which the authors argue specifically identifies workers with a long-term disability, Burkhauser and Houtenville find that employment rates for these workers actually began declining during the 1980s. As a result, they dispute earlier conclusions that the ADA was the result of the observed decline in employment rates, arguing instead that the decline was caused by changes to Social Security regulations.\textsuperscript{172} An earlier 2002 report by Bound and Waidmann made a similar argument, based on evidence that the decline in employment rates among the disabled coincided with an increase in SSDI payments.\textsuperscript{173}

\textsuperscript{169} Acemoglu and Angrist (2001), 917.
\textsuperscript{170} Ibid., 917.
\textsuperscript{171} Houtenville and Burkhauser, The Employment of People with Disabilities (2004), 5.
\textsuperscript{172} Ibid., 6.
\textsuperscript{173} Bound and Waidmann, “Accounting for Recent Declines” (2002), 232.
Using a method proposed by DeLeire, discrimination can be distinguished from the effects of health on productivity by comparing non-work disabled with the nondisabled.\textsuperscript{174} Doing this requires that we assume that non-work limited disabled workers have a health problem that does not affect work productivity and that discrimination exists even in the absence of a productivity effect.

For non-work limited disabilities, a 1995 report by Augustus Jones actually found a preference for that group, with slightly better employment outcomes than for the nondisabled. For the work-limited disabled, all of the employment outcome differences were fully explained by the productivity differences due to the disability. Hence, Jones found no evidence of discrimination against those with disabilities, except for that which is fully explained by productivity differences. That is, people with disabilities were less likely to be hired, but only to the extent that they are less productive than people without disabilities.\textsuperscript{175} This is consistent with what Jolls found in her 2000 study in the US.\textsuperscript{176} Jones further found that the outcome gap between those with and without disabilities narrowed between 1997 and 2003, suggesting that the ADA is having its intended effects. She concludes that policy should use resources to focus on increasing the productivity of those with disabilities rather than focusing on discrimination.\textsuperscript{177}

In his 2000 study using SIPP data, DeLeire arrived at the paradoxical conclusion that while the ADA had increased job accommodation for and reduced discrimination against people with disabilities, the costs of compliance were high enough that they reduced the demand for workers with disabilities. This is not completely at odds with Jones’ findings, and could be used to argue for US policy that provides economic assistance to achieve compliance in order to reduce any negative impact on hiring. Indeed, there has been a vigorous political debate concerning whether the ADA amounted to an unfunded Federal mandate or an undue burden.\textsuperscript{178}

However, before making the argument about the possible efficacy of providing economic assistance to aid in achieving ADA compliance, we need to revisit DeLeire’s analysis using current data. His study used data from 1990 through 1995. It is likely that the hiring climate with respect to people with disabilities has changed substantially in the ensuing years. It was also pointed out that DeLeire found effects as early as 1990—which predates the ADA, making the effects he observed unlikely to be fully due to the ADA, if at all. Many states were enacting “local” legislation, and it is possible that the effects DeLeire observed were not due to the national legislation.

In their 2003 study, Beegle and Stock attempted to distinguish between the effects of state and Federal laws. They used a quasi-experimental framework to in effect create treatment and

\begin{footnotes}
\footnote{DeLeire, “Changes in Wage Discrimination” (2000), 144-158.}
\footnote{Jones, Augustus, “Federal Court Responses To State and Local Claims of ‘Undue Burden’ In Complying with The Americans with Disabilities Act,” \textit{Publius} 25, No. 3 (1995), 41-54.}
\footnote{Jones (1995), 41-54.}
\end{footnotes}
comparison groups. To do this, they take advantage of the fact that two states—Alabama and Mississippi—did not have legislation that protected the disabled against private employer discrimination prior to passage of the ADA. Hence, while looking at the other 48 states can at best measure the incremental effects of the ADA, the effects in those two states would be entirely due to the ADA.\textsuperscript{179}

Beegle and Stock found that disability anti-discrimination laws are associated with lower relative earnings of the disabled, with slightly lower relative labor force participation rates, but are not associated with lower relative employment rates for the disabled once they controlled for preexisting employment trends among the disabled.

Many studies focus on the effects of the ADA on labor force participation, earnings, and employment rates. A much neglected area, however, is the extent to which labor force participation and earnings are affected by the existence of programs that effectively replace earnings for people with disabilities. Many studies note the disutility of work for the disabled. That is, many work because they have no other choice, despite the fact that the disutility for them is much higher than for people without disabilities. However, we are not aware of any current studies that control for income from other sources (such as disability payments) when attempting to measure the impact of the ADA on employment outcomes. Except for a recent study on the quality of life of disabled veterans, we are also unaware of any broader study that seeks to determine whether the ADA has resulted in measureable changes in quality of life of people with disabilities.

**Employer Policies, Practices, and Attitudes**

A growing amount of research indicates that corporate policies, practices, and attitudes have an important effect on lower employer demand for workers with disabilities. Research has found that employers frequently underestimate the amount of assistance available to them for the hiring and training of workers with disabilities. Perhaps more importantly, employers also frequently overestimate and fear the negative effects of hiring workers with disabilities, significantly decreasing their willingness to pursue this population.

A 2001 article by Peck and Kirkbride outlines four of the primary fears that prevent employers from hiring workers with disabilities, along with potential strategies for reducing these fears. One of these fears, of the expense of training and accommodations, will be discussed in greater detail below. In addition to expenses, however, employers are often concerned that workers with disabilities will be less productive, or will require more supervision, than those without disabilities; that discrimination laws will prevent the employer from terminating an unproductive worker with a disability; and that there is insufficient evidence that hiring a worker with disabilities would be beneficial from a fiscal or business perspective.\textsuperscript{180}

Peck and Kirkbride go on to argue that the best strategy for reducing these fears is by educating employers. This applies not only to increasing employer awareness of available assistance, but


also to marketing workers with disabilities in a more effective manner. For example, they point out that a deaf worker would be especially valuable in a position that required high productivity in a distracting environment. Such examples, they say, demonstrate how a disability can, in fact, be an asset to the worker and to the employer.\footnote{Ibid., 74-75.} Many employers’ negative outlooks on hiring workers with disabilities are the result of an underlying misunderstanding or misapprehension of the benefits and risks of such workers, and improving employer awareness that such fears are unfounded would likely improve the employment of these workers considerably.

In order to address the perception that hiring workers with disabilities results in prohibitory expenses, the Job Accommodation Network surveyed employers who already had incorporated workers with disabilities into their workforce. It found that 46 percent of employers reported that accommodating workers with disabilities cost nothing, while 45 percent reported only a one-time cost of, on average, $500.\footnote{Job Accommodation Network, \textit{Workplace Accommodations} (2007), 2.} Other researchers have also found that there is also significant progress to be made in improving employers’ and employees’ outlooks regarding the employment of those with disabilities. For example, a 2003 survey of employers found that 15 percent of business reported being “uncomfortable” with individuals who have a disability, and 30 percent believe that workers with disabilities could not adequately complete the work required of them.\footnote{Dixon, Kruse, and Van Horn, “Restricted Access, (2003), 1-2.} A 1997 report by Boyle came to similar conclusions regarding the co-workers of those with disabilities. According to Boyle, social interactions between workers with and without disabilities is frequently a source of stress and discomfort, which may cause employers to hire fewer workers with disabilities.\footnote{Boyle, “Social Barriers To Successful Reentry” (1997), 262-263.}

In 2000, Bruyère surveyed Federal and private employers about accommodating workers with disabilities, and found that most employers reported making efforts towards accommodation. Barriers remain, however, particularly in terms of a lack of knowledge regarding potential accommodations and a need to improve attitudes towards the employment of those with disabilities. Bruyère also notes, however, that the lack of training and education among those with disabilities also serves as a barrier to employment, even when employers make necessary accommodations.\footnote{Bruyère, “Disability Employment Policies and Practices” (2000), 6-7.}

Bruyère subsequently published two more articles on the subject of employer accommodations for workers with disabilities. A 2003 report built upon the 2000 article discussed above, reviewing the literature, along with research conducted by Cornell University, to find that “discriminatory or stereotyping attitudes in the workplace about people with disabilities continues to be a barrier to employment and advancement.” She also finds that the attitudes of a company’s managers towards workers with disabilities, and their level of commitment to reducing discrimination, is a “key factor” in eliminating barriers.\footnote{Bruyère, Erickson, and Ferrentino, “Identity and Disability in the Workplace” (2001), 20-21.} A third Bruyère article on

this subject was published in 2001, and argued that better education and training for human resources workers would improve their ability to use new technologies successfully in hiring and incorporating workers with disabilities into the workforce.\textsuperscript{187}

Given these barriers, it is widely acknowledged that informing employers and employees without disabilities about how to better incorporate those with disabilities into the workplace would likely improve the employment rate of those with disabilities. It is also worth noting that, in addition to informing employers about how to employ those with disabilities, it is also necessary to inform them about existing regulations such as the ADA. According to a 2000 report by Hignite, many employers are unaware of existing ADA laws, thus preventing these employers from adequately following these laws.\textsuperscript{188} Better knowledge of existing rules and regulations, in addition to information regarding how to better accommodate those with disabilities, would likely improve the employment experience of workers with disabilities.

While these reports and studies provide considerable insight into employer perspectives and attitudes towards the employment of those with disabilities, there have been very few systematic examinations of the relationship between corporate culture and disability employment. In light of this absence, ODEP commissioned a research consortium lead by Syracuse University’s Burton Blatt Institute to:

\begin{quote}
...develop a standard design methodology and conduct case study research to identify ways in which an organization’s structures, values, policies and day-to-day practices, facilitate the employment of people with disabilities.\textsuperscript{189}
\end{quote}

After developing “a scientifically rigorous, standardized, relevant, and replicable method” for researchers to conduct case studies of individual corporate cultures, and their effects on the employment of those with disabilities, the consortium conducted six case studies of companies with noted commitments to disability employment.\textsuperscript{190} It found that the culture and outlook fostered by a company’s management team had a significant impact on employee experiences and performance, for those both with and without disabilities.

More specifically, the consortium found that managers play a “critical role” in workplace policies; not only do positive relationships between managers and employees predict positive employee outlooks toward the workplace, but when managers believed the benefits of disability accommodation outweigh the costs, employee perceptions of prejudice decrease. Related to this was the finding that “across all employees, perceptions about the inclusiveness of the work climate is significantly and positively associated with...psychological empowerment.” and this empowerment was most notable among employees with disabilities than those without.\textsuperscript{191}

\begin{footnotes}
\textsuperscript{187} Bruyère and Erickson, \textit{E-Human Resources} (2001), 38-40.
\textsuperscript{188} Hignite, “The Accessible Association” (2000), 35-43.
\textsuperscript{190} Ibid., 4.
\textsuperscript{191} Ibid., 6.
\end{footnotes}
It is also noteworthy that the consortium found accommodations to benefit all employees, both with and without disabilities. That is, the proportion of all employees “who have been granted accommodations in a unit is a strong negative predictor of perceived disability prejudice” against those with disabilities. This demonstrates that an emphasis on universal accommodation can reduce resentment sparked by employees with disabilities receiving ‘special treatment.’

In sum, the consortium found that inclusive policies and practices affect the employee’s perception of their employer, which impact “employees’ reported job satisfaction, commitment, and productivity,” which finally “impact an organization’s bottom-line: tenure and turnover, as well as organizational citizenship behaviors.” Further research into other kinds of companies, utilizing the protocols and techniques outlined in this report, will help clarify these findings. It is clear, however, that companies which cultivate a culture of inclusiveness are better able to incorporate workers with disabilities while simultaneously increasing employee satisfaction and productivity.

**Flexible Work Schedules and Telework**

The transition from a factory-oriented, goods-producing economy towards an office-oriented, services-providing one, in tandem with the rapid development of advanced telecommunications equipment, has created myriad opportunities for workers and employers to develop more flexible, non-traditional work schedules and environments. This is particularly true for workers with disabilities. Flexible work schedules, including part-time arrangements, allow workers who are physically incapable of working full-time to pursue employment and receive the benefits thereof. The ability to work from home or some other accommodating environment rather than a central office prevents physical barriers from interfering with a workers desire to participate in the labor market.

Discerning how these trends affect workers with disabilities, and to what degree they represent opportunities for such workers, can be difficult. For example, while statistics are available on the degree to which the population with disabilities is employed part-time, determining to what degree that part-time employment is voluntary is less so. Clearly, though, such trends offer a degree of flexibility which could potentially become invaluable to increasing the labor force participation of those with disabilities.

As discussed in the previous chapter, workers with disabilities are more likely to be employed part-time than workers without disabilities. According to Schur’s 2003 report, between 1995 and 2001, an average of 28.2 percent of employed people with disabilities worked part-time, more than twice as much as the 13.5 percent of employed people without disabilities working part-time. As shown in Figure VI-3, below, the part-time rate increases if the disability is severe or more likely to interfere with employment.

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192 Ibid., 7.
This is not necessarily an indication that those with disabilities are being discriminated against or marginalized, though; in fact, several studies have found that workers with disabilities are more likely to voluntarily work part-time than those without disabilities, which may indicate that part-time employment is more attractive to the population with disabilities. According to Schur:

> People with disabilities are more likely to take contingent and part-time jobs as labor markets tighten and employers increasingly cater to worker needs and preferences. This supports the idea that it is not discrimination but the way in which these jobs can accommodate health concerns that primarily explains the high rates of nonstandard work among people with disabilities.¹⁹⁵

Furthermore, the part-time employment rate of workers with disability rose significantly after the implementation of the ADA. The benefits and protection offered by that law, in addition to the “extension of Medicaid benefits beyond SSI eligibility and increased earnings allowance for SSI and SSDI recipients” likely made part-time employment more financially viable for those with disabilities.¹⁹⁶

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¹⁹⁵ Schur (2003), 617.
Related to this discussion is whether those with disabilities are more likely to work non-standard schedules as well. That is, whether those with disabilities are more likely to work evening, night, or rotating shifts, perhaps filling jobs which workers without disabilities, facing fewer barriers to employment, elect not to take. In an examination of a relatively small sample size, however, researchers found that variations in the likelihood of working non-day shifts between those with and without disabilities were not statistically significant.\(^\text{197}\) According to the authors, the similarity in these rates is itself potentially problematic; non-day shifts are widely acknowledged to be more burdensome than day shifts, particularly socially. Further research will be needed in order to determine whether these negative effects are more pronounced for those with disabilities, and whether efforts should be made to reduce non-day shifts among those with disabilities.\(^\text{198}\)

One trend in the broader labor market which could have a substantial impact is the rise of teleworking. A report presented to the 5th European Conference on e-Government in 2005 provides a fairly comprehensive account of telework, both in the total labor market and as it applies specifically to workers with disabilities. Though this report does not present data on the use of teleworking among those with disabilities, it does address the debate over whether telework would be beneficial or harmful to those with disabilities. While the ability to work from home or another adapted environment presents an obviously beneficial degree of flexibility for employers and workers with disabilities, it also presents numerous challenges. The lack of direct supervision over employees leads employers to worry about productivity, and employees to worry about a lack of feedback and disconnection from career advancement through the office culture.\(^\text{199}\) This can be particularly dangerous for workers with disabilities, who already face lower promotion rates.

A concern more directly related to those with disabilities, however, is the common critique that teleworking frequently results in social isolation. Working from home allows for employment flexibility, but it also prevents the worker from interacting with coworkers. As discussed in previous chapters, people with disabilities are prone to social isolation and the negative psychological affects thereof, and employment has been cited as a potential remedy for this trend precisely because it provides an environment for social interaction. At least one report found, however, that these negative aspects “can be minimized with careful implementation strategies,” and in fact that “teleworking had for a significant minority led to greater involvement in community activities.”\(^\text{200}\)

\(^\text{197}\) Presser and Altman (2002), 14.
\(^\text{198}\) Ibid., 23.
\(^\text{200}\) Baker and Fairchild (2005), 4.
VII. Employment Assistance

A variety of efforts have been made to improve the employment of people with disabilities, to varying degrees of success. These efforts include Federal, state, and local programs to provide training and assistance to workers with disabilities, programs to provide education and incentives for employers to hire workers with disabilities, and the development and distribution of assistive technologies that minimize the impact of a disability on a worker’s employability. As the previous chapters have shown, the relatively low rates of employment for those with disabilities indicate that there is still room for improvement in these efforts. Nevertheless, a closer examination of the various kinds of efforts that have been made can help policymakers decide which programs to pursue in the future.

Government Assistance

There are a wide variety of programs and laws provided for by Federal, state, and local governments that provide assistance and protection to those with disabilities. As Livermore et al. outline in their summary of available programs, these include cash assistance such as SSDI and workers compensation, in-kind support like Medicare and Medicaid, training programs such as Vocational Rehabilitation (VR) and Workforce Investment Act (WIA) programs, tax incentives and credits, and anti-discrimination laws such as the ADA. According to these authors, however, the absence of a unified, overarching system for assistance is a notable detriment for those with disabilities. Because there is such a large variety of available programs, many of which have overlapping requirements or restrictions, workers with disabilities may have difficulty determining which programs are best suited to their own needs.

A 2006 paper by Stapleton et al., however, argues that the prevalence of poverty among those with disabilities is compounded by the current system of benefits provided to the disabled, which the authors called “paternalistic and outdated.” They argue that current benefits “devalue” the disabled individual’s ability to contribute to his own economic welfare, and call for systemic reforms to promote economic self-sufficiency among those with disabilities. That is, the current system of assistance programs effectively disincentivizes economic self-sufficiency, which forces those with disabilities to become dependent on assistance programs.

In his 2007 testimony to the US Senate Finance Committee, Stapleton expounded on this argument while focusing on the Social Security program. He argues that while SSDI benefits are crucial to those with severe impairments who are incapable of working, the program is “unduly burdened” by those with lesser impairments, who would be better served by programs that help them become as self-sufficient as possible. Not only would this alleviate the burden on...
this particular program, it would reduce taxpayer costs and prevent workers with disabilities from prematurely or unnecessarily exiting the labor force.\textsuperscript{204}

To a certain extent, this is borne out by state experience. For example, with respect to VR, the state of Hawaii reports that:

\begin{quote}
The VR program is cost effective. The average case service cost was $1,973. VR services increased the average annual earning power of people with disabilities from a weekly average of $49 at referral to $303 a week at closure. These are yearly earnings increases of around 618\%, from $2,548 to $15,756.\textsuperscript{205}
\end{quote}

Similarly, with respect to individuals on an independent living track, in 2005 the state of Oregon reports that:\textsuperscript{206}

\begin{quote}
One of the exciting outcomes of the provision of Independent Living services is the reduction of tax dollars needed by individuals with disabilities who utilize these services to become more self-reliant... with nine of the ten Centers reporting, the savings from the attached data alone totals $3,733,683.22. This represents an average savings of $5,266.13 per individual served.
\end{quote}

Critics of these arguments note that studies assessing the efficacy of public sector programs typically assemble data using Federal form RSA-911, which is only available for participants who are deemed successfully rehabilitated and omits individuals who received significant services but were not ultimately employed upon termination from the program, resulting in a clear selection bias.\textsuperscript{207}

with respect to return-to-work prospects in general, the consensus is that early identification and intervention after a worker is injured is often the critical factor in the return-to-work outcome.\textsuperscript{208} Simply being more proactive in terms of commencing a program can have a lot to do with lowering the costs incurred for workers’ compensation. Getting individuals who would benefit from a VR program into such programs is therefore a desirable aim.

There are several ways to encourage participation in a VR program. For example, pay for performance plans are found in some workers’ compensation programs. These programs pay financial benefits to health care providers that achieve a certain level of quality, efficiency, or customer satisfaction. Such incentives can be offered to a variety of providers, from the doctors

\begin{flushright}
204 Senate Committee on Finance (2007), 4-5.
\end{flushright}
treating the injured worker to the employment networks helping participants in the Ticket to Work Program (TTW). Other incentives, such as financial benefits directly payable to vocational rehabilitation participants, are less commonly seen in practice but are frequently advocated.

If the ultimate goal of VR is to increase the participant’s employability, it would follow that VR job placement services are those that are most appreciated by the participant. Conversely, VR services not directly related to job placement are looked upon with less appreciation. Hennessey and Muller describe how 68 percent of Social Security Disability Insurance (SSDI) survey respondents receiving job placement VR services believed VR to be helpful, while only 24 percent receiving physical therapy VR services believed VR to be helpful. 209

Speed is also crucial. According to a study by the American College of Occupational and Environmental Medicine (ACOEM), early identification and intervention are critical. 210 This can be illustrated with an example from a major American manufacturer, where the return-to-work rate rapidly diminishes over a matter of weeks, not months or years, as depicted in Figure VII-1.

**Figure VII-1. Likelihood of Return To Work By Weeks Away**

In advance of a 2003 seminar on employment research, Thornton, Zietzer, et al. prepared a report summarizing two related studies that examined government assistance for those with

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disabilities in both the UK and the US. From the outset, the authors note that “neither the US nor the UK has yet found interventions that make a substantial impact and that the potential lessons learnt are only partial solutions.”\textsuperscript{212} Nevertheless, following an explanation of the various services and programs available in each country, the authors outline a number of potential “lessons” for each nation.

In the US, for example, government tax credits for employer accommodations are not always sufficient to offset ongoing costs. By contrast, the UK has created a program specifically to offset costs for employment accommodations for those with disabilities. The authors also argue that the US government has made itself a model for employing those with disabilities, and has successfully included activists in the creation and development of new programs.\textsuperscript{213} So while neither government has found a full solution, both have strengths and weaknesses that contribute to a better understanding of how to improve employment assistance for those with disabilities.

In 2005, Westat, an independent research contractor, released a report as part of a detailed assessment of ODEP’s Demonstration Program, which “consists of a variety of initiatives targeted at both adults and youth with disabilities” aimed at improving employment outcomes.\textsuperscript{214} In the course of its analysis, Westat found that:

\textit{...demonstration projects are achieving many important outcomes, including placing customers with some of the most difficult challenges (e.g., psychiatric illness or mental retardation) into competitive employment. The results have been to place customers in high quality jobs (i.e., jobs paying above minimum wage that also include the offer of fringe benefits and potential career development) and to move them off the SSA disability roles.\textsuperscript{215}}

Despite these and other positive aspects of the Demonstration Program, Westat also found several problematic areas which require further attention, particularly related to strategic planning, program accessibility, coordination of services and resources, and youth programs, among others.\textsuperscript{216} Despite these weaknesses, ODEP’s Demonstration Program was found to have achieved significant successes, particularly as lessons learned from older generation programs were applied to improving and optimizing newer programs.\textsuperscript{217}

Finally, a 1997 article by Burkhauser examined the changing demographics of the population receiving disability assistance, and found that the proportion of younger people in the population was increasing. As a result, the benefits system was quickly changing “from one primarily meant to ease the transition into retirement for older workers to a program providing

\textsuperscript{213} Ibid., 7-9.
\textsuperscript{214} Elinson and Frey, “Interim Report” (2005), 1.
\textsuperscript{215} Ibid., 6.
\textsuperscript{216} Ibid., 7-8.
\textsuperscript{217} Ibid., 14.
lifetime transfers from cradle to grave.” The current system is therefore inadequate to achieve the goal of incorporating people with disabilities into the workforce. Burkhauser calls for continued dedication to providing necessary benefits to compensate for lower wages and incomes, but argues that the benefits system must be adapted to focus on helping people with disabilities obtain and maintain employment.  

**Limitations of Incentives**

The incorporation of incentives often motivates individuals on a variety of levels. Incentives to increase completion rates of VR participants can have a perverse effect by getting individuals out of the system too quickly without proper treatment. Financial funding for entering a VR program that is not tied to attainment of rehabilitation goals can potentially reduce effort on the part of participants.

Moreover, incentives are of limited value to certain subgroups of vocational rehabilitation participants. Drebing and others discuss how Veterans Health Administration’s vocational rehabilitation participants with head trauma may not be able to contemplate the meaning or impact of incentives. More generally, demographic characteristics affecting return-to-work rates illustrate that participants bring different sets of skills, experiences, and motivations into a program. These inputs can have an impact on return-to-work potential. Incentives uniformly applied across the population do not result in the same return-to-work rates across all groups.

**Workforce Investment Act**

The Workforce Investment Act of 1998 (WIA) was designed to create a system for integrating various job assistance programs through “One-Stop” centers, thereby making it easier for employers and job-seekers, including those with disabilities, to obtain the training and assistance necessary to obtain work. In 2004, Holcomb and Barnow released a report analyzing the effectiveness of this program in helping those with disabilities obtain employment. The report found that individuals with disabilities represent a disproportionately small segment of the population served by the WIA program, averaging between 5 and 9 percent of those exiting the program. Of this, an even smaller proportion had a disability that was a barrier to employment—in 2002, 5.8 percent of those exiting the program were identified as having a disability, but only 1.8 percent had a disability that interfered with employment. According to the authors, this is largely due to problems with accessing the program rather than a failure of service once in the program. Relatively few people with disabilities enter the program, but once in there is little difference in services or outcomes between those with and without disabilities.

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218 Burkhauser, “Are People with Disabilities Expected To Work?” (1997), 82-83.
221 Ibid., 19-20.
The authors highlight a number of issues that prevent WIA One-Stop centers from effectively assisting those with disabilities. On the most basic level, the philosophy behind such centers is not conducive to the needs of the disabled. One-Stop Centers aim to provide generic services to many different groups, and are primarily focused on short-term goals. As such, most services provided at these centers are meant to be self-guided and self-managed. This philosophy is not easily applicable to providing services to those with disabilities, who are better served by more customized, specialized assistance.222

Furthermore, the facilities, equipment, and staff at One-Stop Centers are often unable to provide suitable assistance to those with disabilities. Facilities and equipment frequently lack the modifications necessary for use by those with disabilities, and staff are not trained to recognize or provide the specialized assistance needed. Awareness of these issues has led some groups specializing in disability assistance to recommend that those with disabilities avoid One-Stop Centers, and those who do go to a One-Stop Center are frequently simply directed to more specialized VR by staff.223

Recognizing that the purpose of One-Stop Centers is not to specialize in disability assistance, Holcomb and Barnow conclude that;

“...the generic service delivery structure of the One-Stop system, existing WIA performance standards, insufficient access and accommodations, general lack of staff awareness and disability expertise, and lack of effective collaboration between One-Stop Centers and other disability-serving organizations can create barriers to participation in the One-Stop system by people with disabilities.”224

According to the authors, because of the nature of WIA programs, the best way to improve assistance to those with disabilities is by improving relationships with programs that provide specialized assistance to those with disabilities.225

Efforts have been made to improve the effectiveness of WIA programs for disabled job-seekers. For example, the Department of Labor has provided state and local programs with grants to facilitate the improvement of their WIA programs for those with disabilities. In 2004, the GAO analyzed the effectiveness of these grants, and found that while many locations were using the grants to improve architectural accessibility and acquire assistive equipment, there was little consistency in improvements across localized areas. As a result, the GAO recommended that the Department of Labor implement a strategy for ensuring consistent use of these grants by WIA programs in order to more thoroughly ensure accessibility for those with disabilities.226

222 Holcomb and Barnow (2004), 21.
223 Ibid., 22-23.
224 Ibid., 44-45.
225 Ibid., 45.
Ticket to Work Program

The Ticket To Work Program (TTW) was created as a result of the TTW and Work Incentives Improvement Act of 1999. This program can be seen as an expansion (not a replacement) of the incentives provided to SSDI beneficiaries. Beneficiaries of SSDI or Supplemental Security Income (SSI) can request a TTW ticket, which acts as a voucher that can be used with traditional providers (i.e., state vocational rehabilitation agencies or private employment networks that offer similar services).

Incentives are in effect throughout this program. First, beneficiaries with a desire to go back to work but who are disenchanted with traditional providers have an additional option in private employment networks. Second, beneficiaries are allowed to keep their medical benefits during rehabilitation and financial benefits do not completely offset earnings while individuals remain in the program. Third, payment amounts to providers are tied to their ability to rehabilitate beneficiaries, measured by timely, successful return-to-work status without termination.

As the TTW program is less than a decade old, no consensus has formed regarding its overall effectiveness. The Urban Institute has produced a series of reports on the potential for success or failure. Among the concerns expressed in these reports is the potential for improper pricing of services that misstate the value of rehabilitation, which can result in suboptimal outcomes and improper incentives for cases to be quickly closed out. For example, there have been reports showing that Ohio Managed Care Organizations get bonus money from the state based on how quickly they close injured worker cases, not necessarily on whether the workers get services they need most.

Assistive Technology

As the use of assistive technology (AT) has grown more widespread in recent years, researchers have begun dedicating more time to examining its effectiveness, and especially which barriers remain to its use. A review of literature and data on this subject, published in 2001 by Driscoll, Rodger, and de Jonge, found that:

[In] addition to the barriers...outlined in the literature related to funding the technology, time delays, information availability, training and maintenance, other issues [prevent AT adoption]. These include the attitudes of the parties involved, the level of responsibility they assumed in the process, and their knowledge and awareness of AT and AT services, as well as issues associated with the work environment.

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227 Rupp, Kalman and Stephen H. Bell (eds), Paying For Results In Vocational Rehabilitation: Will Provider Incentives Work For Ticket To Work?, Washington, DC: The Urban Institute (2002).
229 Driscoll, Rodger, and de Jonge, “The Integration of assistive Technology” (2001), 53.
The authors argue that an increased awareness and understanding by the parties involved, especially employers and service providers, of the barriers faced by each other party would facilitate the corrections necessary to improve AT implementation. That same year, Langton and Ramseur published an article arguing that the barriers to adoption and implementation of AT would be minimized by improving the assessment process which precedes and informs the development of a worker’s AT plan. A well-developed assessment allows the service provider to identify the individual needs and potential difficulties of each worker, and also to find simpler, lower-cost solutions for these problems. A much earlier article, published in 1991 by Catherine Marenghi, describes the variety of low-cost solutions for AT implementation. Marenghi argues that the cost of assistive devices is often far lower than employers predict. Improving awareness of such low-cost solutions, and designing processes that encourage their use, would therefore greatly improve adoption of assistive technologies.

A 2001 article by Day et al. examined the impact of AT over time. According to the authors, the abandonment of assistive devices is so common in part because the device fails to improve the worker’s quality of life to the level he or she expected or its impact becomes diminished as the user grows accustomed to the device. After surveying people with disabilities, however, they found that the positive effect of an assistive device does not decrease after the first year of use. The authors argue that this, in combination with the Psychosocial Impact of Assistive Devices Scale (PIADS), a survey that has been found to accurately measure the impact of an assistive device (AD), “provides clinicians with a reliable and economical method for assessing the role of psychosocial factors in the retention or abandonment of an AD.”

As previously stated, one issue with regards to AT is the assessment processes used to prescribe AT solutions. The articles described above hint that better processes up front will allow employers to minimize costs while increasing worker productivity. In order to identify and manifest the optimal tool, more research is required in this area. While several tools, such as the Occupational Therapy Functional Assessment Compilation Tool (OT FACT) and the Assistive Technology Outcome Measure (ATOM), are currently being used in the field, they are not optimal for assessing an individual’s functional limitations. By researching the current tools being used in the field and their limitations, experts can begin to develop a tool which takes into account all factors of an individual’s life and can successfully match them to an optimal AT solution.

230 Ibid., 64.
VIII. Gaps in Existing Research

While the body of research on the employment of persons with disabilities is substantial, significant gaps remain in our understanding of the trends and demographics that affect employment for those with disabilities, and the likely consequences of those trends. In some cases, these gaps are in the mechanics of gathering information on those with disabilities, as evidenced by the absence of a consensus definition for “disability.” Other gaps can be found in the content of the studies. For example, the employment impact of globalism on those with disabilities has received little attention. There has also been little study of how demographic shifts in certain segments of the overall population (the growing Hispanic population, for example) will affect the demographic make-up of and employer demand for workers with disabilities. In fact, there has been almost no demand-side study of employment for those with disabilities, with certain notable exceptions.

This latter issue represents one of the most prominent gaps in the literature, particularly within the context of this project. While there is a considerable body of research on the supply of workers with disabilities and how demographic and economic trends affect it, there is far less research into the demand for such workers. Such research would include an analysis of the demographic, economic, and global trends that affect employers’ ability and desire to hire those with disabilities.

Additional gaps and areas for future research can be found in the need to better define how successful current assistance programs and laws have been at providing for people with disabilities. Discussion of ADA-related research remains contentious. As more data is accumulated, however, researchers will be better able to arrive at reliable conclusions regarding that law and its effects. This is the case for many assistance programs and laws, which typically require considerable time to pass before effects can be clearly observed and measured.

This chapter will outline in greater details these gaps in disability employment research. It is organized to mirror the presentation of subjects in the preceding chapters.

Definitions and Measures of Disability

The first, and perhaps most far-reaching, gap in the existing literature and research on employment and disability concerns the very data and sources researchers use in their analyses; namely, the number and variety of definitions of “disability” used by different sources, surveys, and laws. This variety is certainly understandable given the inherent complexity of defining disability in a concise and widely acceptable manner, but it nevertheless makes comparisons across surveys and studies (and conclusions concerning a given law’s effects) enormously difficult.

To some degree this gap will always exist, not only because the very concept of disability is subject to so much debate and variation, but also because the sheer logistics of transitioning every government program and academic study onto a single definition is prohibitively complex. Furthermore, it is possible that the individual needs and goals of the programs and studies would be changed or even impeded through the implementation of a universal
definition. As Michelle Adler writes, “programmatic definitions are constructed with the legislative intent of the particular program in mind”; because each program is intended to serve a distinct population, each program’s definition is designed to identify that population alone.\textsuperscript{234} Forcing every program to adopt a single definition would eliminate this identifying capability.

Variations in definitions and measures of disability can nevertheless significantly alter the findings of a study, particularly when survey measures capable of identifying a program’s intended population do not exist. Kruse and Schur developed 14 measures for disability in a 2003 article on the effects of the ADA. These measures attempt to capture the numerous permutations of functional impairment, program participation, and legal qualifications related to disability. As seen in Table VIII-1 below, not only do the population sizes identified by each measure vary considerably, but the effects of the ADA on each population vary as well. Conclusions regarding the ADA’s effectiveness would thus be subject to variation depending on which measure a researcher elected to use.

Table VIII-1. Post-ADA Employment Rate Change By Disability Measure (SIPP Data)\textsuperscript{235}

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>1. Work Limitation</td>
<td>10.4%</td>
<td>-</td>
</tr>
<tr>
<td>2. Any Functional/ADL Limitations</td>
<td>12.6%</td>
<td>0</td>
</tr>
<tr>
<td>3. Severe Functional/ADL Limitations</td>
<td>4.5%</td>
<td>0</td>
</tr>
<tr>
<td><strong>No SSI/SSDI and has:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Work Limitation</td>
<td>8.5%</td>
<td>0</td>
</tr>
<tr>
<td>5. Any Functional/ADL Limitations</td>
<td>10.9%</td>
<td>+</td>
</tr>
<tr>
<td>6. Severe Functional/ADL Limitations</td>
<td>3.3%</td>
<td>+</td>
</tr>
<tr>
<td><strong>Health condition does not prevent working and has:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Work Limitation</td>
<td>6.4%</td>
<td>0</td>
</tr>
<tr>
<td>8. Any Functional/ADL Limitations</td>
<td>9.2%</td>
<td>+</td>
</tr>
<tr>
<td>9. Severe Functional/ADL Limitations</td>
<td>2.3%</td>
<td>+</td>
</tr>
<tr>
<td><strong>No SSI/SSDI, health condition does not prevent working, and has:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Work Limitation</td>
<td>6.1%</td>
<td>0</td>
</tr>
<tr>
<td>11. Any Functional/ADL Limitations</td>
<td>8.9%</td>
<td>+</td>
</tr>
<tr>
<td>12. Severe Functional/ADL Limitations</td>
<td>2.1%</td>
<td>+</td>
</tr>
<tr>
<td><strong>No work limitation and has:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Any Functional/ADL Limitations</td>
<td>5.4%</td>
<td>+</td>
</tr>
<tr>
<td>14. Severe Functional/ADL Limitations</td>
<td>1.1%</td>
<td>+</td>
</tr>
</tbody>
</table>

Note: - and + are negative and positive changes significant at the 95% level; 0 indicates change is not significant at the 95% level.

\textsuperscript{234} Adler (1991), 15.
\textsuperscript{235} Kruse and Schur, “Does the Disability Affect the Outcome?” (2003), 288.
Clearly then, the absence of a consensus definition of “disability” is not merely a matter of academic abstraction; it can have serious effects on any attempt to analyze the data on disability and specific policies’ effects. Numerous researchers have indicated that more uniform definitions and measures would greatly improve the accuracy of disability research, particularly for evaluating the effects of the ADA. It is, of course, entirely possible to work within these multiple definitions to come to reasonably reliable conclusions on the issues. Aligning and reconciling differences among the definitions and tools used by the various surveys would increase researchers’ ability to obtain the data relevant to the definition of disability they require.

For example, further study into how programs define disability, how surveys define disability, and where gaps between the two exist would greatly improve the surveys’ ability to identify each program’s intended population. Future study should attempt to arrive at a consensus regarding which data sources are best suited for each line of research; that is, which source is best able to identify the population targeted by a particular policy or concept. New survey tools may be required to capture different populations, especially since there continues to be no survey tool that comprehensively captures the population targeted by the ADA. Providing such a definitional framework for researchers would prove an invaluable resource for future study.

**Labor Supply and Workforce Demographics**

Predicting the future composition of any population is fraught with complications, particularly when the population is as large and diverse as that of the United States. The variety of factors that will influence the size and composition of the US population at large, and the population with disabilities in particular, is daunting. The first gap in current research on these demographics is a direct consequence of the debate over disability’s definition just discussed—without a settled definition of who has a disability, there can be no consensus on the size of that population.

As explored in Chapter III, most researchers have found the US disability rate to be roughly 7 to 8 percent, with certain studies pegging the rate as high as 13 percent. These variations introduce uncertainty when attempts are made to create policy for this population. Because the size of the population with disabilities serves as the foundation for any study thereof, every attempt must be made to ensure as much accuracy as possible. Furthermore, policies come with budgets that depend upon the size of the targeted population. Targeting 13 percent of the population conceivably could almost double the budget, as compared with 7 percent.

There is also considerable need for tools and measures that better differentiate between short and long-term disabilities, particularly for use in longitudinal studies of population trends. Such measures could also help mitigate the widely-acknowledged bias inherent in self-reported disability measures. That is, being able to distinguish the population with long-term disability from the overall population with disabilities, researchers could filter short-term disabilities and conditions from disability data, thereby arriving at a clearer picture of the population targeted by most disability policies.

Other factors affecting a population’s disability rate include the type and severity of disability, access to accommodations and assistive technology, and gender. These factors are widely
acknowledged to have an impact on disability rate, but little research has been performed to clearly define what causes those effects. Developing a model for how these factors influence the disability rate for a population will allow for more effective, carefully targeted policies.

Broader demographic trends in the overall population can also be expected to affect the population with disabilities, and more efforts must be made to improve understanding of what these effects will be. The first, and perhaps most important, demographic trend in the coming decades, at least for the population with disabilities, is an increase in the median age of the population. While there is broad agreement that a rightward shift in age distribution is occurring, the precise implications for the population with disabilities remains less clear. At the simplest level, as the median age of the US population increases, this will likely lead to a higher disability rate in the overall population, because the probability of disability increases with age. More detailed trends and consequences must be studied, however, to develop a more sophisticated understanding of the future population.

Further research will be required to identify how concurrent medical improvements will affect the employment consequences of age-related disability, for example. While the older population can reasonably be expected to continue to have a higher disability rate than the younger generation, medical improvements will invariably improve their health, ability to work, life span, and quality of life as well. Perhaps by extending life spans, this technology will increase the disability rate among the aged by allowing more people to survive previously-fatal conditions with a disability; conversely, such technology may reduce the employment consequences of disability by introducing new techniques and adaptive measures that mitigate or eliminate certain disabilities altogether.

Researchers have already begun calling attention to the need for age-related research of disabilities, and particularly of the ability of the US health care system to provide for the expected increase in age-related disability. This research “will need to look past the current approach to entirely different ways to structure and deliver long-term care” in order to provide policy-makers with the information necessary to design an appropriate health care system.  

This illustrates the need for researchers to identify the needs of policy-makers, and to develop the analyses and data to help fulfill those needs.

Related to the need to further study the aging of the US population is the recognition that, as a population ages, the disability rate of women in relation to that of men increases, and not simply because women tend to live longer. Furthermore, while “some researchers have examined the economic and social disparities faced by women with disabilities, almost no attention has been paid to their political participation, how they respond to discrimination, and the role of employment.” Given the numerous social barriers women already face without disabilities, further research into identifying and reducing the impact of disability for this population should rightly be considered a priority.

The ethnic make-up of the US population is also expected to undergo significant changes in the near future. This is largely due to the effects of immigration, which will have particular impact on the size of the Hispanic population. As Mitra Toossi notes:

The greatest uncertainty in population projection is, and always has been, immigration, which has a paramount impact on the size, composition, and growth rate of both the population and the labor force.\(^{238}\)

The specific implications of immigration and related trends on the population with disabilities has received relatively little academic attention, despite the fact that it will be one of the most significant demographic trends in the next 50 years. These trends have a significant impact on the educational distribution of a population, which similarly affects the likelihood of working in a field where work-related disability is common. As with gender, different immigrant groups face different forms and degrees of ethnic and cultural prejudice which, when combined with the potential for disability discrimination, can lead to significant barriers to employment.

Projecting the composition of the US population, both with and without disabilities, and attempting to predict how this composition will affect the disability rate and employment of those with disabilities will require considerable study in order to develop appropriately responsive policies. Developing long-term policies for increasing employment among those with disabilities (or reducing the employment impact of disability) will require a reliable understanding of what the population with disabilities will look like in the future, the ability of medical and adaptive technology to mitigate the impact of disability, and what strategies are most successful improving employment outcomes.

**Employment Trends**

Researchers have largely agreed that, during and since the 1990s, the employment of people with disabilities has decreased. Beyond this consensus, however, considerable disagreement remains over what caused this decline, and whether that trend is continuing. There is very little research available projecting future employment trends within the population with disabilities, in part because of this disagreement over the causes of the recent decline. Without identifying the causes of current trends, it becomes impossible to project whether and how these trends will continue into the future.

Gaps in the research on broad economic and demand-related trends will be discussed in the following section; here, we will focus explicitly on research into employment outcomes for those with disabilities. In this field, perhaps the most prominent need for further research regards the effects of the Americans with Disabilities Act of 1990. As discussed in the previous sections, this will likely require the development of a new survey measure, or a systematic exploration of how to better use current measures, in order to comprehensively study the population targeted by that law. As Burt Barnow wrote in 2008:

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\(^{238}\) Toossi (2007), 50.
The data that are available appear to be adequate for identifying trends in employment patterns for people with disabilities, but they are clearly inadequate for assessing the impact of acts such as the ADA.\textsuperscript{239}

Barnow also notes that it is unlikely that researchers will reach a consensus on the ADA in the next 20 years, pointing to the continued disagreements over the effects of minimum wage legislation as indicative of the need for extensive longitudinal data before conclusions on such laws can be reached.\textsuperscript{240} Future research should be designed with this need for long-term data in mind; periodic supplements to existing surveys, performed over the course of an extended time period, could fill the need for improved identification of the ADA population without exceeding the practical and fiscal limits of survey design, for example.

Of course, future research should not be focused on discrimination alone as the source of employment and wage declines for those with disabilities. That is, prejudice and discrimination must be distinguished from each other, and research should not be focused on prejudice at the expense of other potential causes of discrimination, such as perceived differences in productivity. In a 1994 report, Baldwin and Johnson defined discrimination as what “occurs when persons of equal productivity are offered different wages or unequal opportunities for employment.”\textsuperscript{241} Prejudice—a negative attitude towards people with particular characteristics such as disabilities—is one of several causes of such discrimination. The authors argued that “the elimination of discrimination caused by prejudice will benefit a relatively small proportion of people with disabilities,” because “wage discrimination based on prejudice is not a significant problem for four-fifths of employed men with impairments.”\textsuperscript{242}

Barnow also points to the need for research into non-standard jobs, such as part-time employment, for those with disabilities.\textsuperscript{243} The flexibility such positions offer those with disabilities has been noted by numerous researchers, but there continues to be a relative lack of quantitative evidence on the subject. Some authors point specifically to the degree to which flexible scheduling and an emphasis on non-standard jobs can be incentivized among employers, and how effective such an effort would be for the workers themselves.\textsuperscript{244}

For example, part-time employees typically earn lower wages and receive fewer benefits than full-time workers. Any attempt to encourage part-time employment among those with disabilities must first determine whether the earnings and benefits from such employment would be a sufficiently positive outcome. Research could also reveal strategies for improving financial outcomes for non-standard employees with disabilities, so as to reduce the negative consequences workers accept for such flexibility.

\begin{thebibliography}{9}
\bibitem{239} Barnow (2008), 49.
\bibitem{240} Ibid., 49.
\bibitem{241} Baldwin and Johnson (1994), 2.
\bibitem{242} Ibid., 14.
\bibitem{243} Barnow (2008), 49.
\bibitem{244} Haveman and Wolfe (2000), 44.
\end{thebibliography}
As Pan Kim noted in 1996, however, the attractiveness of non-standard employment options for those with disabilities is often in part due to a lack of the education, marketable skills, or even transportation required for standard jobs.\textsuperscript{245} Research into reducing such barriers would help improve the likelihood that workers with disabilities who work part-time do so voluntarily.

A comprehensive approach for defining and measuring disability will fill the most prominent gaps in research into employment trends among the affected population. It will allow for more accurate snapshots of employment and labor force participation within the population, along with more reliable projections of future trends. More accurate measures will also allow researchers to better assess the effects of the ADA, the most wide-reaching disability employment law of this era. However, further research and data-collection on employment itself, particularly aimed at differentiating between various categories and types of occupation, will also be necessary to obtain a complete picture of the employment trends in the population with disabilities.

**Employer Demand and Workplace Trends**

Employer demand and broad workplace trends represent arguably the most significant gaps in disability employment research. As recently as 2006, the Interagency Committee on Disability Research (ICDR) organized a two-day national summit on employer demand-side research, which “has received considerably less [research] attention than the supply-side.”\textsuperscript{246} and while international trends like globalization have produced considerable academic literature, very little of it specifically concerns the effects of these trends on those with disabilities. Furthermore, whereas the gaps already discussed tend to deal with historical trends or the composition of the population with disabilities, research into demand and workplace trends will explicitly address future employment and how to design policies and programs to improve outcomes for those with disabilities. As such, it is particularly important for policy-makers and other stake-holders.

Outside of Kruse and Schur’s 2008 article, discussed in detail in previous chapters, there has been very little research into the trends and factors which influence employer demand for workers with disabilities. This represents a significant fault in disability employment literature, because without a reliable understanding of what influences employers to hire workers with disabilities, it is almost impossible to design strategies for increasing such employment. As the ICDR summit’s keynote speaker argued:

\textsuperscript{245} Kim (1996), 86.
\textsuperscript{246} Interagency Committee on Disability Research (2007), 1.
To generate employer demand, [research, policy, and advocacy] communities need to generate a belief that people with disabilities can contribute as employees. To generate that belief, they have to show the business community that people with disabilities add value to the workplace. This has to be done through research.\textsuperscript{247}

The ICDR outlined a number of specific demand-related fields that merit future research. First, they call for investigations into the relationship between corporate culture and disability employment. For example, research already “supports the idea that encouraging a culture of integration within a company makes good business sense.”\textsuperscript{248} Can this research be expanded to support the inclusion of those with disabilities in diversity policies? Such research could help determine the degree to which employing those with disabilities improves the public’s perception of a company, which can ultimately improve that company’s profitability.

Other potential lines of research include how workers with disabilities affect a company’s productivity and profitability, how such workers can be incorporated into a variety of management models, and how wellness and accommodation policies can be improved. In many ways, such research would attempt to understand how different categories of employers think, and how to incorporate workers with disabilities into that thinking. Researchers will therefore have to distinguish between the different sorts of employers: service-producing and goods-producing, small and large, for-profit and non-profit, et cetera.\textsuperscript{249} Developing specific strategies and providing a centralized source of information for each type of employer will help individual employers seek out and incorporate workers with disabilities.

Any research into employer outlook towards workers with disabilities will necessarily be tied to research into discrimination and prejudice. The previous two sections have already outlined several discrimination-related areas that require future study, as well as the related complications of studying the Americans with Disabilities Act. In terms directly related to demand research, economists at Cornell University note that:

\begin{quote}
...no studies have been able to satisfactorily disentangle the impact of demand side factors related to the passage of the ADA or changes in the mix of jobs in the economy in the 1990s from supply side factors related to changes in the ease of access to SSDI and SSI benefits or to a reduction in the share of jobs that provide private health insurance, which would discourage work among the population with disabilities.\textsuperscript{250}
\end{quote}

In studying discrimination and laws like the ADA, it is important that researchers specifically consider the issues from a demand-side perspective in order to better develop specific strategies aimed at

\textsuperscript{247} Romano (2007), 11.
\textsuperscript{248} Interagency Committee on Disability Research (2007), 62.
\textsuperscript{249} Ibid., 69.
\textsuperscript{250} Burkhauser, Daly, Houtenville, and Nargis (2001), 19.
employers. It is likely that research into the effect and magnitude of discrimination toward those with disabilities will be required for a considerable period into the future before firm conclusions can be reached, because the effects of anti-discrimination policies like the ADA will not be identifiable until extensive longitudinal data has been gathered and analyzed.

Related to employer outlook and demand is the need for research into accommodations for those with disabilities. Even where research and data exists supporting workplace technologies as a fiscally practical solution, employers and workers are often unaware of such evidence. Several researchers have found, for example, that employers often overestimate the cost of adaptive technologies, and are thus hesitant to employ those with disabilities because of mistakenly-high foreseen expenses.\textsuperscript{251} While further research into these areas is needed, efforts must be made to disseminate the data to the employment community.

Of particular need is research into whether particular disabilities and accommodations make a worker more adept or qualified for certain occupations. As Kruse and Schur note, “detailed study of how specific accommodations can help people with impairments in different occupations would...enable better estimates of the potential for job growth.”\textsuperscript{252} For example, perhaps a sensory impairment would allow a worker to maintain focus and therefore be more productive in a high-distraction environment. Such data would encourage employers to actively seek out workers with particular disabilities, as it would demonstrate the productivity benefits such workers offer and encourage the adoption of the necessary adaptive technologies.

There is also a need for data on the impact of potentially accommodating trends, such as telework and related IT advances. Such trends are not specifically aimed at workers with disabilities, but represent potentially significant opportunities for them to obtain employment previously considered unrealistic—particularly for people with limited mobility and/or other transportation barriers. To date, there has been little research into how telework impacts workers with disabilities, financially or socially. While these trends appear likely to benefit those with disabilities, the potential for social isolation is significant. Further study will be necessary to determine whether telework should be encouraged among the population with disabilities, and how.

Finally, there have been no major studies into the effects of globalization and other major international labor trends for people with disabilities. Some of these areas, such as the need for more data on the impact of immigration and offshoring on demand for workers with disabilities, will be satisfied by filling some of the demographics and other needs discussed in previous sections. There remain, however, considerable gaps in the data on how international, macro-economic trends will likely effect disability employment in the future.

Specific areas of need include how the shifting global distribution of education will affect those with disabilities, and how education efforts aimed at workers with disabilities can help mitigate potentially negative effects of those trends. In addition, open trade and globalization could potentially lead to both lower wages (for certain occupations, at least) and lower prices in the

\begin{footnotes}
\item[252] Kruse and Schur (2009), 16.
\end{footnotes}
US; research will be required to determine what this will mean for those with disabilities. The literature on globalization and the international economy is incredibly diverse, and in many cases, it is likely that these disability-related gaps could be filled by examining the literature and data already available and applying it specifically to those with disabilities.

Research should be funded to identify and quantify the costs of AT. This research should explore the costs along at least three dimensions: financial, physiological, and social.

The financial costs of AT should provide information on the entire life-cycle costs of the device. This would include the cost of provision of the device, the ongoing maintenance costs of the device, and the replacement costs of the device. Such an analysis might result in an “annual cost” amortization of the AT device, which could then be compared with the benefits of the specific device.

The physiological costs of assistive technology would include a number of factors. The energy expenditure of operating any given assistive device would be relatively easy to determine and, in many cases, it would be possible to assess the relative energy consumption of performing a task with and without the assistive technology. The cognitive load of using assistive technology might also be assessed, if appropriate measures were developed. The long-term physiological costs of assistive technology may be vital to the provision of AT. For example, the incidence of shoulder and elbow injuries in manual wheelchair users has been well documented, though the causes and strategies for prevention are not well characterized. Over the long-term, it is likely that manual wheelchair users will accumulate sufficient damage to their arms as to make continued use of manual wheelchairs impossible.

The social costs of assistive technology have been explored only superficially but may play a great role in technology abandonment. It is well known that some technologies are overt and look “weird.” Other technologies are well accepted by both users and others. The characteristics of technologies that do not carry a social stigma should be explored, and avenues of making technology less socially stigmatizing while preserving function should be explored.

Currently, assistive technology is recommended and provided with limited information. While it may be known that a particular wheelchair allows a veteran to move around the clinic, it is not known if it will allow him/her to move around a jobsite. Workplace AT such as on-screen keyboards and screen magnifiers allow for users to work independently, but there is little information about the improved social acceptance of working more independently. Research should be funded to fully characterize the costs and benefits of assistive technology. Such information would allow data-driven determinations of the net benefits of assistive technology and allow more complete determinations of degree of disability and proper interventions.

**Summary**

Eliminating these gaps will require widespread cooperation among stakeholders in both short- and long-term projects. Certain efforts will be within the capabilities of a single research team, while others will likely require the organization and cooperation of multiple researchers under the umbrella of an authority such as ODEP. In some cases, particularly regarding demand-side issues, new survey tools may need to be developed in order to provide researchers with the
necessary data. Other efforts, such as a comprehensive approach to defining and measuring disability, will require cooperation and consensus among many parties.

In Part Two of this report, we propose a detailed research plan for closing these gaps. This plan is comprised of 14 individual recommendations, categorized by subject, scope, and duration. These recommendations are:

1. A Comprehensive Approach to Defining ‘Disability’
2. Update Study of Employment Trends in the General Population
3. Federal Employment of Veterans with Disabilities
4. Employment of Persons with Disabilities in the Federal Government
5. National Employment Survey
6. Longitudinal Study of Employment Outcomes
7. Update Previous Occupational Employment Projections
8. Project Educational Attainment for People with Disabilities
9. Analyze Supply and Demand for Workers with Disabilities
10. Case Studies of Employers
11. Survey of Hiring Practices
12. Analysis of Health Care Costs for Employers
13. Employment-Based Functional Limitation Tool
14. Develop a Job Matching Interface for O*NET

Such a plan obviously cannot eliminate every gap in the existing literature, but implementing a clear vision and strategy for improving the body of literature will help align the research community towards that common goal. This plan provides a cohesive structure upon which to build future research, including tools and software for transforming research into actionable policy. Implementing it will thus provide a road map for organizing future research, both in the short- and long-term.
Part Two: Proposed Research Design Plan

I. Introduction

Research into demographics and employment trends for the population with disabilities can be divided into three broad categories: Labor Supply and Workforce Demographics, Employment Outcomes and Trends, and Employer Demand and Workplace Trends. Part One of this report has attempted to approach the body of research using this basic framework, in order to contextualize each individual study and topic within the broader research environment. Of course, this is not a perfect division—some topics fall into multiple categories depending on the individual researcher’s approach, and the categories themselves are parts of a complex labor market system, interacting and affecting each other in several ways.

Figure I-1 provides a graphic overview of how Part One approaches the body of research. In the most basic sense, the labor market is governed by two forces: supply and demand. The labor supply is the population of available workers. This population can be described and categorized by numerous variables, including demographics like race, ethnicity, and gender, educational attainment, experience and skills obtained, and the presence of disability. Labor demand, on the other hand, is defined by what employers seek from potential employees. The individual factors demanded by employers are similar to those described for labor supply—education, skills, experience, etc.—but are governed by different factors such as market forces, corporate culture, and global trends.

The interactions and overlap between these forces are complex and difficult to disentangle. For example, in recent decades the market for technologically-advanced goods like computers and mobile phones has grown dramatically. As a result, employers who create those goods have sought to hire workers with advanced math and science degrees. Viewed this way, educational attainment is a demand-side trend. However, during the same period, numerous demographic trends have led to an increase in the attainment of post-secondary degrees, such that today bachelor’s degrees are often considered a basic requirement for many jobs in the same way that a high school diploma was a basic requirement thirty years ago. Because a college education is so common now, employers have begun demanding higher degrees such that positions continue to demand proportionately higher educational qualifications. Viewed this way, educational attainment is a supply-side trend.

Once this complex blend of supply and demand forces has created a labor market, a number of external forces intervene to affect the market’s final employment outcomes. This is because without intervention, the market can disproportionately favor certain workers at the expense of others. Intervening efforts are made in order to ensure that the market is as fair and equitable as possible. On the demand side, for example, laws and regulations such as the Americans with Disabilities Act (ADA) attempt to ensure that employers do not treat certain workers unfairly or unequally. Support programs such as those that help employers adopt assistive technologies help mitigate the perceived financial and productivity losses hiring certain workers can entail. On the supply side, assistive technologies and employer
accommodations help workers adapt to the workplace, allowing them to fulfill the same role as a worker without a disability.

**Figure I-1. Conceptual Framework For Proposed Research Plan**

The research plan outlined in this document approaches the topic of disability employment and demographics from this perspective. The proposed studies have been categorized into the primary topics just discussed: supply, demand, and outcomes. Within these three categories, studies are further divided into two types: macro- and micro-analysis. Macro-level analysis uses data compiled in an aggregate manner, examining trends and statistics in a large population. For example, most employment outcome research to date examines the issue on a macro-level, using tools like overall employment and labor force participation rates. Micro-level analysis, however, examines issues on a more individual level. Using multivariate techniques on this individual level, for example, researchers can discern the effects of different influences on employment outcomes, thereby arriving at a more causal view of employment trends. Dividing the research proposals along these lines provides ODEP and future researchers a clearer understanding of the scope and methodology proposed for each effort.

The first and last sections of the design plan discuss structural proposals for improving the methods and tools used by the research community. The first section discusses the need for a comprehensive approach to defining and measuring disability, a need that fundamentally
affects the entire body of research. The final sections call for the development of tools and software that will facilitate the practical development of research findings into actionable policies and efforts. Some of these efforts are not explicitly research-based, insofar as they may not require the gathering or analysis of data.

As required by this project’s Statement of Work, proposed studies have also been marked as short- or long-term, as later shown in Table III-1. The aim is to provide ODEP and other researchers an indicator of both the priority and complexity of each proposed study.

Clearly, no research plan can fill every gap in a body of research as complex as that on disability and employment. Expanding knowledge in this area will require continued efforts well into the future, and continued assessments of new and remaining gaps as the body of research grows and evolves. This proposal, however, provides stakeholders with a concise set of proposals for new research into these subjects.
II. Gaps In Existing Research

Part One, Volume One, of this report includes a detailed account of research into demographics and workplace trends and how they affect the population with disabilities, including an assessment of existing gaps in that body of research. These gaps are considerable, particularly in areas such as employer demand. This section provides a brief overview of the Gaps discussion from that volume in order to provide a better context for readers before describing the detailed research proposals in Chapter III. Understanding the current state of demographic and employment research, including an overall account of the gaps in that body, allows readers to better understand why each research proposal is necessary.

Definitions and Measures of Disability

The first, and perhaps most far-reaching, gap in the existing literature and research on employment with disabilities concerns the data and sources researchers use in their analyses—namely, the number and variety of definitions of disability used by different sources, surveys, and laws. Further study into how programs define disability, how surveys define disability, and where gaps between the two exist could greatly improve the surveys’ ability to identify each program’s intended population. Future study should attempt to arrive at a consensus regarding which data sources are best suited for each line of research; that is, which source is best able to identify the population targeted by a particular policy or concept. New survey tools may be needed to cover different populations, especially since there continues to be no survey tool that comprehensively covers the population targeted by the ADA. Providing such a definitional framework for researchers would be a useful resource for future study.

Labor Supply and Workforce Demographics

The first gap in current research on labor supply and workplace demographics is a direct consequence of the debate over disability’s definition just discussed—the lack of a consensus definition of disability makes estimating the actual size of the population difficult. For example, researchers need tools and measures that clearly differentiate between short and long-term disabilities, particularly when conducting longitudinal studies of population trends. Other factors affecting a population’s disability rate and its effect on employment outcomes include the type and severity of disability, access to accommodations and assistive technology, race, ethnicity, and gender. These factors are widely acknowledged to have an impact on disability rate and employment outcome, but little research has been performed to clearly identify the underlying mechanisms. Developing a model for how these factors influence the disability rate and employment outcomes for a population will allow for more effective, carefully-targeted policies.

Broader demographic trends in the overall population can also be expected to affect the population with disabilities, and more effort should be made to improve our understanding these effects. The first and perhaps most important demographic trend in the coming decades, at least for the population with disabilities, is growth in the older population. In addition to project the impact of this trend for those with disabilities, further research is needed to identify how concurrent medical improvements will affect the disability rate within the older population itself. While the older population is expected to continue to have a higher disability rate than
the younger generation, medical improvements invariably will improve the health, life span, and quality of life of older Americans as well. Other demographics that have not been examined extensively with specific reference to the population with disabilities include race, ethnicity, and gender.

Some of the main topics regarding labor supply include:

**Educational Attainment Trends and Projections**: A number of studies have been conducted comparing educational participation in the population with disabilities to the population without disabilities. The 2004 Harris Interactive *Survey of Americans with Disabilities, Kruse’s 1998 “Demographic, Income, And Health Care Characteristics, 1993,”* and Burkhauser and Houtenville’s 2006 *Guide to Disability Statistics from the Current Population Survey—Annual Social and Economic Supplement (March CPS)*, for example, all found that those without disabilities were more likely to have pursued and completed education after high school than those with disabilities.\(^{253}\) However, thus far no studies have examined trends in the specific courses of study pursued by these populations. This results in a significant gap in our understanding of what occupations each population will be prepared for in the future.

**Labor Supply Trends and Underlying Causal Factors**: A need exists to show where the supply and demand for labor is heading in the US, and to determine whether policy changes might be used to better improve the ability of the labor supply to meet the market’s demands. Many short-term studies, such as the proposed update to Kruse and Schur’s recent report (described below), use a straightforward method of applying percentages and simple mathematical projections. As a result, trends are unidirectional. A broadly-scoped macro study of future labor supply demographics and their implications for workers with disabilities could allow policymakers to better understand the underlying mechanics of the supply of labor. This not only provides a model that allows for trends to change over time, but also provides an econometric framework that could enable policy analysts to design strategies for helping those with disabilities to better meet the market’s needs.

**Implications of Health Trends for the US Health Care System**: As discussed above and in Part One of this report, the proportion of the population older than 50 in the US is expected to grow substantially over the next several decades. Historically, this population has a significantly higher disability rate than the overall population, and while medical advances may mitigate this rate gap or shift the shape of the curve, it is unlikely that medical technology will eliminate it entirely. The capability of the health care system to effectively provide for this population must be identified, taking into account the potential for major health care reform currently being debated.

**Employment Outcomes and Trends**

Regarding employment outcomes and trends, perhaps the most prominent need for further research concerns the effects of the Americans With Disabilities Act of 1990 (ADA). This will

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likely require the development of a new survey measure or a systematic exploration of how to better use current measures in order to fully cover the population targeted by that law. Future research should be designed with this need for long-term data in mind; periodic supplements to existing surveys, performed over the course of an extended time period, could fill the need for improved identification of the ADA population without exceeding the practical and fiscal limits of survey design.

There is also a need for research into non-standard jobs, such as customized employment, telework, and part-time employment for those with disabilities. The flexibility such positions offer those with disabilities has been noted by numerous researchers, but there continues to be a relative lack of quantitative evidence on the subject. Some authors point specifically to the degree to which flexible scheduling and an emphasis on non-standard jobs can be incentivized among employers, and how effective such an effort might be for the workers themselves. Before instituting such programs, however, researchers need to determine not only how best to design the program, but also whether non-standard employment represents benefits significant enough to merit recommendation.

A comprehensive approach for defining and measuring disability will fill the most prominent gaps in research into employment trends among the affected population. It will allow for more accurate snapshots of employment and labor force participation within the population, along with more reliable projections of future trends. More accurate measures will also allow researchers to better assess the effects of the ADA, the most wide-reaching disability employment law of this era. However, further research and data collection on employment itself—particularly aimed at differentiating between various categories and types of occupations—will also be necessary to obtain a complete picture of the employment trends in the population with disabilities.

Some of the main topics regarding employment outcomes include:

**Factors Affecting Employment Trends:** While considerable research has been performed to identify past trends in employment outcomes, very few studies have comprehensively analyzed the underlying causes for these trends. In some cases, studies have examined the potential impact of an individual factor, but no studies have attempted to catalogue each primary factor that likely influences employment trends. Of the numerous factors that might be considered, three are of particular importance: type and severity of disability, accommodations and assistive technology, and telecommuting and transportation system changes.

**Non-Standard Employment among those with Disabilities:** While research exists showing the prevalence of non-standard employment, no study attempts to further investigate the nature of non-standard employment. Such a study would attempt to identify how frequently such employment is voluntary and whether financial or benefits-related policies could reduce potentially negative consequences of non-full-time work. Identifying individuals involved in nonstandard employment poses certain difficulties because current survey instruments do not assess it. Therefore, a new survey may be required to identify those with non-standard employment, both with and without disabilities, to obtain more detailed information on the nature and consequences of such employment for both groups.
Data on Federal Employment of Disabled Veterans: Currently, the Office of Personnel Management (OPM) collects information on the employment of those with disabilities by the Federal government only at the time of hiring, and then only if the job seekers choose to disclose the disability. So, for example, when veterans hired by the Federal government are subsequently diagnosed with disabilities years after discharge from the military, their disability never becomes known to OPM. Consequently, current data on Federal employment of veterans with service-connected disabilities is neither accurate nor updated. The Federal government, however, must be a model for the employment and incorporation of those with disabilities into the workplace, particularly veterans. Therefore, a more accurate and timely system for collecting and publishing this information should be developed, both to hold the government accountable in its role as a model-employer and to disseminate this example to the business community.

Employer Demand and Workplace Trends

Employer demand and broad workplace trends represent arguably the most significant gap in disability employment research. As recently as 2006, the Interagency Committee On Disability Research (ICDR) organized a two-day national summit on employer demand-side research and found that this area “has received considerably less [research] attention than the supply-side.” 254 Outside of Kruse and Schur’s 2009 article, 255 there has been very little research into the trends and factors that influence employer demand for workers with disabilities. The ICDR outlined a number of specific demand-related fields for future research. First, they called for investigation into the relationship between corporate culture and disability employment. For example, research already “supports the idea that encouraging a culture of integration within a company makes good business sense.” 256 Can this research be expanded to support the inclusion of those with disabilities in diversity policies? Such research could help determine the degree to which employing those with disabilities improves the public’s perception of a company, which can ultimately improve that company’s profitability.

Other potential lines of research include how workers with disabilities affect a company’s productivity and profitability, how such workers can be incorporated into a variety of management models, and how wellness and accommodation policies can be improved. This research would attempt to understand how different categories of employers think, and how to incorporate workers with disabilities into that thinking. Researchers therefore need to distinguish among the different kinds of employers: service-producing and goods-producing, small and large, for-profit and not-for-profit, et cetera. 257 Developing specific strategies and providing a centralized source of information for each type of employer will help individual employers seek out and incorporate workers with disabilities.

256 ICDR (2007), 62.
257 Ibid., 69.
Related to employer outlook and demand is the need for research into accommodations for those with disabilities. Even where research and data exists supporting workplace technologies as a fiscally practical solution, employers and workers are often unaware of such evidence. While further research into these areas is needed, efforts must be made to disseminate the data to employers and the employment community. There is also a need for data on the impact of potentially accommodating trends, such as telework and related IT advances. Such trends are not specifically aimed at workers with disabilities, but represent potentially significant opportunities for them to obtain employment previously considered unrealistic.

Research should also be funded to identify and quantify the costs of AT. This research should explore the costs along at least three dimensions: financial, physiological, and social. The financial costs of AT should provide information on the entire life-cycle costs of the device. This would include the cost of providing, maintaining, and replacing (when necessary) the device. Such an analysis might result in an “annual cost” amortization of the AT device, which could then be compared with the benefits of the specific device.

Finally, there have been no major studies into the effects of globalization and other major international labor trends for people with disabilities. Specific areas of need include how the shifting global distribution of education will affect those with disabilities, and how education efforts aimed at workers with disabilities can help mitigate negative effects of those trends. In addition, open trade and globalization could lead to both lower wages (for certain occupations, at least) and lower prices in the US; research will be required to determine what this will mean for those with disabilities. The literature on globalization and the international economy is incredibly diverse, and in many cases it is likely that these disability-related gaps could be filled by examining the literature and data already available and applying it specifically to those with disabilities.

Some of the main topics regarding employer demand include:

**Corporate Culture and Policies:** Recent research, including ODEP’s disability and corporate culture project, have found that corporate culture and policy factors can have a significant impact on a company’s ability to employ and accommodate those with disabilities. A more detailed investigation of these factors might reveal which particular aspects of a corporation’s culture or which particular policies represent barriers or facilitators to employment. Such an investigation could identify not only best practices for employing and accommodating those with disabilities, but also those policies that hinder a corporation’s ability to do so. After best practices have been identified, they would be disseminated to the business community in the form of a widely-accessible final report.

**Labor Demand Trends and Underlying Causal Factors:** There are currently few demand-side studies of employment for those with disabilities. In order to ascertain the true availability of jobs for individuals with disabilities, researchers need to quantify the underlying trends behind why these individuals are or are not being hired. A broad, extensive effort is therefore necessary to efficiently cover the gaps in this area. This effort should aim to be as comprehensive as possible. Aggregate demand for goods and services, globalism and outsourcing, changing occupational mix, and technology and business strategy are some of the
trends that should be analyzed. Researchers will have to mine for data on the hiring of individuals with disabilities.

**Effects of National Health Care on Employer Costs and Job Mobility**: The ongoing debate over the future of the health care system necessitates that an effort be made to identify how potential reforms will affect employers’ ability to accommodate those with disabilities. In the current system, insurance and health care costs are a major barrier between employers and those with disabilities. Because workers with disabilities typically incur higher health costs, employers may prefer hiring a worker without disabilities to keep costs down. Health care reform that results in lower insurance costs, however, may lower or even eliminate this barrier. Meanwhile, other reform proposals involve the elimination of employment-based insurance. Depending on the particulars of such a plan, the elimination of a major source of insurance could negatively impact those with disabilities, who often rely on insurance to a greater degree than those without disabilities.
III. Research Design Plan

This chapter describes a proposed research plan designed to address the primary gaps in the research on demographics and employment trends for those with disabilities. As discussed in the Introduction, this plan is presented within a conceptual framework based around the distinction between supply-side and demand-side trends in the labor market. In order to provide a plan that serves the practical needs of ODEP and the broader research community, a distinction is also made between short- and long-term projects, as shown in Table III-1.

Table III-1. Research Proposals by Duration and Topic Heading

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Duration</th>
<th>Type of Study</th>
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<tbody>
<tr>
<td>Definition of Disability</td>
<td></td>
<td></td>
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<tr>
<td>A Comprehensive Approach to Defining Disability</td>
<td>Short-term</td>
<td>Consensus building</td>
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<tr>
<td>Employment Trends</td>
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<tr>
<td>Update EconSys Employment Trends Study</td>
<td>Short-term</td>
<td>Update existing study</td>
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<tr>
<td>Federal Employment of Veterans with Disabilities</td>
<td>Short-term</td>
<td>Update Existing Reports</td>
</tr>
<tr>
<td>Employment in the Federal Government</td>
<td>Short-term</td>
<td>Data Analysis</td>
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<tr>
<td>Factors Affecting Employment Outcomes</td>
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<tr>
<td>National Employment Survey</td>
<td>Long-term</td>
<td>Data Analysis</td>
</tr>
<tr>
<td>Longitudinal Study of Employment Outcomes</td>
<td>Long-term</td>
<td>Survey</td>
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<tr>
<td>Occupational Employment Projections</td>
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<tr>
<td>Update Previous Occupational Employment Projections</td>
<td>Short-term</td>
<td>Update Existing Study</td>
</tr>
<tr>
<td>Project Educational Attainment for People with Disabilities</td>
<td>Short-term</td>
<td>Data Analysis</td>
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<tr>
<td>Analyze Supply and Demand for Workers with Disabilities</td>
<td>Long-term</td>
<td>Data Analysis</td>
</tr>
<tr>
<td>Employer Policies, Practices, Attitudes, and Costs</td>
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<tr>
<td>Case Studies of Employers</td>
<td>Short-term</td>
<td>Update Existing Study</td>
</tr>
<tr>
<td>Survey of Hiring Practices</td>
<td>Long-term</td>
<td>Survey</td>
</tr>
<tr>
<td>Analysis of Health Care Costs for Employers</td>
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<td>Assistive Technology</td>
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<tr>
<td>Employment-Based Functional Limitation Tool</td>
<td>Long-term</td>
<td>Data Analysis</td>
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<tr>
<td>Hiring Tools</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Develop a Job Matching Interface for O*NET</td>
<td>Long-term</td>
<td>Data Analysis/Integration</td>
</tr>
</tbody>
</table>

Short-term projects are primarily efforts for which the necessary data already exists, or that do not require data analysis, which can therefore be completed in the immediate future. Longer term projects are those requiring more substantial data-gathering efforts or the development of new survey tools, which can therefore require time frames of up to several years for completion.

For each research recommendation, EconSys provides a description of the project, the project’s potential value for the community, and a proposed methodology for conducting the research. The goal is to provide ODEP and other research entities building blocks that can assist in the development of Statements of Work for the efficient implementation of each proposal.
Definition of Disability

Definitions of disability vary greatly depending on the application or use of the definition. Definitions, for example, vary depending on government program or policy, medical assessment, and applications for different disability compensation programs. In the context of attempting to better understand employment outcomes for people with disabilities, as well as to project demand for related program services, a broad definition of disability that considers multiple contextual factors would be useful. Research on this topic would help to facilitate other research into understanding the factors affecting employment outcomes and the most effective ways to minimize detrimental effects of disability.

1. A Comprehensive Approach To Defining ‘Disability

The absence of a single definition or system of defining disability significantly obstructs current research. The need for a comprehensive approach to disability definitions will affect nearly all research into the employment of those with disabilities. It is unlikely that a single entity or organization could undertake this task, but a cooperative effort organized by ODEP or another appropriate authority could bring together a quorum of stakeholders to develop consensus on a set of definitions, which could then be adopted by the community at-large.

Based on the agreed-upon definitions, existing programmatic and survey measures would be systematically identified and recommendations made as to which survey measures are best suited to particular research goals, and identify current gaps in measures (e.g., identifying ADA population) to guide development of new measures.

The research project would:

- Have several established experts in the field develop papers setting forth a scheme for defining and categorizing disability for purposes of research and policy.
- Create a symposium in which each of the papers is presented.
- Publish the results of the symposium and disseminate it to interested academic entities, government authorities, and other stakeholders.
- Solicit comments and suggestions over a given period of time.
- Gather the experts for a second meeting in which a mediator would help them arrive at a collective definitional scheme or framework.
- Publish the resulting framework, with endorsements from major stakeholders.

Employment Trends

A number of studies have reached often conflicting conclusions about employment trends. Our research tells us that we cannot project such trends into the future without stating a number of caveats and qualifications. Periodic and ongoing research that tracks the movement of employment outcomes is essential for understanding and detecting broader trends, as well as providing a context for research.
2. **Update Study of Employment Trends in the General Population**

High in order of priority is to update the analysis of employment trends and the effects of disability using the most recent CPS data. In particular, six new items were added to the CPS in 2008, designed to obtain information on disability per se and the nature of those disabilities, apart from how or if they affect the capacity for work. Our literature review suggests that disability rates derived using those new survey items will be substantially higher than rates derived using the older measures, and will be more in line with rates derived from the other surveys that attempt to measure disability other than as it affects employment. It would be useful to analyze these new measures both to get a sense of the trends in the different components (i.e., deafness, blindness, cognitive, functional limitations, etc.), but also to analyze the basic correlation between the different kinds of disabilities and their impact on basic employment outcomes.

Most studies to date have focused on contrasting employment outcomes for people with and without disabilities. This approach falls short in that different kinds of disabilities (as well as differing degrees of severity) have differing impacts upon measures of employment outcome (such as labor force participation rate, employment rate, and earnings).

The six new CPS survey disability/impairment items offer an opportunity to quantify the effects of different kinds of disabilities on different employment outcomes. The six new survey items are:

- Is {person} deaf or does {person} have serious difficulty hearing?
- Is {person} blind or does {person} have serious difficulty seeing even when wearing glasses?
- Because of a physical, mental, or emotional condition, does {person} have serious difficulty concentrating, remembering, or making decisions?
- Does {person} have serious walking or climbing stairs?
- Does {person} have difficulty dressing or bathing?
- Because of a physical, mental, or emotional condition does {person} have difficulty doing errands alone such as visiting a doctor's office or shopping?

It is reasonable, for example, to expect that each of these would have differing effects on labor force participation, employment, the amount of work a person can perform, as well as the level of earnings. This can be viewed as preliminary work that would precede more in-depth analysis of disability type and severity using survey data recommended elsewhere in this volume. This work would be analogous to work EconSys performed for VA in which earnings were analyzed to determine the degree to which very specific kinds of disabilities and degrees of disability contributed to loss of earnings.

The six new items will allow researchers to focus on specific types of impairment (noting that impairment does not necessarily equate to a work disability) and to quantify the impact of each on different employment outcomes, and even to assess the relationship between the six new indicators and the seven old ones.
At a minimum, this research would:

- Use monthly data from October 2008 to the present to begin to assess trends in specific impairment types
- Use monthly data to assess the relationship between each of the six survey items and labor force participation rate, employment rate, earnings, and number of paid weeks per year
- Use data from March, 2009 (from the monthly CPS and from the March Supplement) to determine the degree of correspondence between the six new survey items and the seven older items (known as D1 through D7)

Additionally, this research could include multivariate analyses to measure the degree to which the six new measures and the seven older measures “explain” variation in employment outcomes, while controlling for age, sex, education, race, and other available socioeconomic factors. The two analyses would then be combined to attempt to retrofit the six new items onto older data series to try to estimate the incidence of impairment for years and months prior to October, 2008. This would possibly allow researchers to develop a longer time frame by which to assess trends.

Because the six new impairment indicators were largely developed out of items from the ACS (American Community Survey), that data could be used to attempt to validate, as well as to fill in earlier time periods. Again, this could help provide a broader temporal context by which to assess trends and or variability in different kinds of impairment.

3. Federal Employment of Veterans with Disabilities

Currently, the Office of Personnel Management (OPM) submits an annual report to the Congress on employment of veterans in the Federal government including disabled veterans. However, if federally employed veterans are subsequently diagnosed with service-connected disabilities, their disabilities never become known to OPM. A more accurate and timely system for collecting and publishing this information should be developed. This system would:

- Match Department of Veterans Affairs (VA) disability compensation records with OPM records, creating a database which is regularly updated to ensure accuracy.
- Maintain data such that it is accessible by both researchers and policy-makers.
- Publish an annual summary report.

4. Employment of Persons with Disabilities in the Federal Government

An analysis of OPM data on employment of persons with disabilities by the Federal government, with certain limitation, could be compared with employment outcomes in the general population discussed above. This study would determine the extent to which the Federal government is truly a model for employment of people with disabilities.

Factors Affecting Employment Outcomes

Data from CPS, Census, and ACS are not sufficient to address all the relevant issues and to more fully understand the underlying factors affecting employment outcomes. The primary focus of
these existing surveys is not to collect information on people with disabilities. In-depth study of the factors affecting employment outcomes requires launching a new survey of people with and without disabilities that would allow researchers to delve more deeply into the contextual factors. This study, long-term in duration, would follow a set of participants over a period of time to see how their employment outcomes are affected. This study would allow researchers to identify key traits on the individual level that can explain and help predict employment outcomes instead of relying on generalized deductions based on macro-level data.

5. National Employment Survey

The new survey could be administered in different ways. The BLS or Census could administer the survey. Researchers could use those agencies’ existing data collection tools and include new questions as a supplement to their ongoing survey efforts. They would then ask for the other data variables they needed, which were already collected in the original survey instrument. Another approach to administer the survey would be to create a completely new survey tool. This process would involve sampling a representative group of individuals throughout the nation, which is described in further detail below. A third approach would be to use a third party vendor such as Harris Interactive to administer the survey to one of their panels. Their Health Panel has already identified specific groups of people who are willing to complete surveys, which may lead to a higher response rate.

The survey should address the factors affecting employment by obtaining individual level data, which might include:

- **Disability Information**: The nature and severity of an individual’s disability should be obtained. Data variables should be collected that include type of disability, time spent living with disability, severity of disability, general limitations caused by the disability, and number of doctor visits made within the past year.
- **Individual’s Social Environment**: Whether the respondent is married, has engaging hobbies, has children or other dependents, is a dependent, goes out socially, is involved in community activities, attends church, or otherwise engages in affirming activities.
- **Living Situation**: A person’s living environment can have a great impact on their employment. The main information which should be gathered in this section are whether or not they require assistance, if so, how frequently they need assistance, who provides the assistance (family or hired), and where they currently reside (which should be gained before the survey is administered).
- **Family Background**: Does the respondent have experience with other family members with disabilities; does the respondent have ties and regular communications with family members, or other connections that provide needed moral and emotional support?
- **Work History**: All survey participants should list their work history for the past 5 years. The data gathered should include job title, work performed, hours worked per week, standard vs. non-standard employment, any periods of unemployment, and size of employer.
- **Personal and Demographic Data**: This topic should cover age, race, veteran status, gender, and other demographic variables that may be helpful in identifying key
character traits that relate to employment. Data should also be collected regarding the individual’s employment related goals (optimal career choice, ability to perform tasks required by their optimal career) and non-employment related interests (hobbies, activities, whether disability affects their ability to perform these tasks).

- **Assistive Technology and Employer Accommodations:** Assistive technology and employer accommodations allow disabled individuals to function more independently. Data should be gathered on what types of personal assistive technology they use and also any employer-provided devices that enable them to perform their required work functions.

- **Telecommuting and Transportation:** Disabilities sometimes affect a person's ability to travel to and from work. Data should be collected on how an individual travels to and from his/her place of employment, the amount of time it takes, and, in cases of public transportation, whether their employers reimburse them for travel costs.

- **Use of Government Programs:** This section should address, for disabled individuals only, which government programs they have utilized for assistance. Examples of programs should include vocational rehabilitation programs, the Assistive Technology Act Program, Centers for Independent Living for Individuals with Disabilities, the Client Assistance Program, and others.

The survey respondents should include people with and without disabilities who are employed and not employed. It is important to include people without disabilities so that the analysts can be certain that findings are not spurious (i.e., to serve as an analytical control group). The survey participants should be identified using a stratified sampling frame to assure that various groups are represented by the survey. At minimum, these groups should include employed and unemployed individuals without disabilities, employed and unemployed individuals with mental disabilities, employed and unemployed individuals with physical disabilities, veterans with and without disabilities, and individuals currently receiving worker’s compensation payments. For purposes of this survey, individuals currently receiving SSI or SSDI payments should not be included. The Social Security Administration (SSA) already collects data on this group for their own purposes. Also, many studies have reported that this group does not seek employment due to the fact they lose their benefits as they earn wages.

One of the main hurdles in completing this study might be identifying survey participants from which to sample. One may have an easier time finding individuals without disabilities, but identifying individuals with specific types of disabilities (mental/physical) can be a challenge. Various data sources may be of assistance in completing this task. Census, SIPP, and CPS data have some markers to indicate whether or not a person is disabled. For veterans, the Department of Veterans Affairs has data that identify disabled veterans and their current disabilities. State disability compensation offices should also have data useful in identifying a sample. Lastly, there are many advocacy and support groups that may have information on individuals with disabilities.

Appropriate analyses would be conducted to estimate the probability of labor force participation, employment, and kind of employment (part time versus full time) based on education, experience, other training, vocational rehabilitation participation, participation in
other government assistance program and other factors identified and the contribution of
different kinds and degrees of disability. Analyses would also be conducted to determine the
effects of these and other identified environmental, experiential, social and demographic
factors and disability type and severity upon quantifiable employment outcomes, such as
earnings, average number of hours worked per week, and/or the number of weeks worked in a
defined time period.

The purpose of these analyses is to control for as many factors as can be identified to
determine the precise contributions of disability type, disability degree, and program factors in
determining the probability of labor force participation and employment. These analyses will
also permit investigation into what kinds of assistance programs are most effective in producing
desired elevation of specific employment outcomes.

To a certain extent, this will provide valuable information in establishing baseline parameters
for cost benefit analyses. More importantly, however, it will also provide a method for
determining what kinds of government assistance or other programs would be the most
efficacious. If, for example it turns out that education statistically is more important than
vocational rehabilitation in elevating the employment status of people with disabilities, then
the study might conclude that programs to improve and increase access to education merit
more funding. On the other hand, if providing assistive technology is the best route to
improved employment outcomes, then programs designed to speed the adoption of assistive
devices would be the better course of action.

The point, however, is that to date there has never been any systematic attempt to collect data
in an overall comprehensive way that would allow policy analysts to make such determinations.
A natural outgrowth of such analyses would also be the ability to build a simulation model that
lets the policy analyst experiment with different kinds of “inputs” to determine how or if
combining specific approaches could yield more optimal sets of outcomes.

6. Longitudinal Study of Employment Outcomes

The second study on employment outcomes should mirror the first study in data gathering
techniques. While the first study in this section would look at employment outcomes on an
individual level at one point in time, this study would attempt to track employment outcome
trends by surveying a smaller group of individuals on a recurring basis. We are not aware of any
current research that tracks employment outcomes at this level for people with disabilities. It
would be useful to employers and policy makers to understand the effects time has on
employment outcomes for disabled and non-disabled individuals.

Researchers could recruit participants for the longitudinal study from those who participated in
the above study. After participants have agreed to complete the survey, they should receive the
survey in the format they desire (online, paper, orally, etc.). The survey should mirror the
survey that was administered in the previous study.

Analysis of the survey data should track the annual employment outcome changes of the
various participants. The researchers would be asked to relate those changes to changes in the
individual’s life. After several iterations of the survey, researchers should be able to begin to
understand how changes in an individual’s life affect their employment outcomes. Major
variables of interest include changes in disability, severity of disability, area of residence, family life, education, and other factors.

The analysis can be viewed much in the way that longitudinal medical studies are. Survival analysis can be performed to determine the effects of different “treatments” (additional education and training, vocational rehabilitation, assistive technology, etc.) on the probability of labor force participation and employment, while controlling for fixed social/demographic factors, variable social/demographic factors, as well as environmental factors (such as the condition of the job market). Multivariate analyses can also be performed to determine the effects of “treatments” upon quantitative employment outcomes, such as earnings and the amount of work performed.

Over time, analysts will gain knowledge about the robustness of the statistical models used as well as the stability of factors identified. It is possible, for example that specific kinds of vocational rehabilitation programs achieve differing levels of success at different phases in a client’s course of overall rehabilitation. It is also possible that in a dynamic economy, strategies that work well when the job market is shrinking are different from strategies that are effective when the job market is expanding or stable. The advantage of a longitudinal study is that it provides an opportunity to see how and if the effects of factors identified change over time. This, for example, can provide a way to determine whether specific policy options are reasonable candidates for longer term public investment.

**Occupational Employment Projections**

Occupational employment projections are an important indicator of the need and demand for specific services provided by federal, state, and local government agencies. These agencies provide a variety of programs that directly assist employees and employers in attempting to mitigate the impact of disability on employment. Knowing the numbers of potential workers with disabilities is important in planning and budgeting.

**7. Update Previous Occupational Employment Projections**

The first stage in conducting new research for occupational employment projections is to update the Kruse and Schur study, “Projecting Potential Demand for Workers with Disabilities,” using the most recent data from BLS, CPS, ACS, and O*Net. Kruse and Schur used three survey data sources for their projections: the 2006 American Community Survey (ACS), the Bureau of Labor Statistics’ biannual occupational projections, and O*Net data. They first estimated the percentage of employed persons with disabilities for each occupation using the ACS data. Then, they applied these percentages to the BLS occupational projections, creating baseline projections for expected changes in employment for persons with disabilities.

The ACS has been updated twice since the 2006 data used by Kruse and Schur, including the release of the 2008 ACS. An update to these projections, alternatively, could use the CPS, which includes new questions that may more accurately identify persons with disabilities. However, this would hinder the ability of researchers to make comparisons between the original study
and the update. The most recent edition of BLS occupational projections were Dohm and Shniper’s 2006-2016 projections, published in 2007. These projections most likely are too optimistic because they do not take into account the most recent recession, as cited in the most recent JOLTS results. Updating the results with data covering the current recession will correct these overly optimistic projections.

In addition to creating baseline projections, Kruse and Schur estimated the potential for growth in employment for people with disabilities by examining the abilities required by growing occupations using O*Net Data and BLS occupational projections. Following the same methodology, an update to this research would use more recent BLS data that includes the current recession to correct overly optimistic projections.

The new employment projections should also reflect projections of the number of working age adults with disabilities, taking into account the aging of the population, immigration and migration trends, changes in the ethnic composition of the population, trends in the kinds of disability that affect us, advances in health care technology, and other factors.

In developing different projection scenarios, it would be useful to perform what-if analysis with alternative assumptions of the effects of assistive technology, accommodations, and changes in employment practices. For example, how does the availability of eye-control computers change projected demand for otherwise qualified workers to perform higher level work in information technology jobs? Or, how might expanding telecommuting opportunities change projected demand for workers with mobility-related disabilities?

8. Project Educational Attainment for People with Disabilities

The second or concurrent step to take for the occupational employment projections is to project educational attainment for people with disabilities. The educational attainment projections then should be incorporated into the occupational employment projections. Changes in how education is delivered are already having an impact on the educational profile of workers in the US, with distance learning playing a major role both in reducing the costs as well as increasing the availability of education. As computers expand opportunities for training and education, we need to project how this technology is spreading to people with disabilities and how it will affect the educational profile of the future workforce.

A number of studies have been conducted comparing educational trends for populations with and without disabilities. The 2004 Harris Interactive Survey of Americans with Disabilities, Douglas Kruse’s 1998 “Demographic, Income, And Health Care Characteristics, 1993,” and Richard Burkhauser and Andrew Houtenville’s 2006 Guide to Disability Statistics from the Current Population Survey—Annual Social and Economic Supplement (March CPS), for example, all found that those without disabilities were more likely to have pursued and completed education after high school than those with disabilities. These studies could be updated using more recent educational attainment information from the ACS or the CPS. These trends could then be used as the basis for projections that compare the educational attainment of people

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with and without disabilities. For example, the proportion of people with disabilities who hold a bachelor’s degree or a master’s degree could be compared to the proportion without disabilities to examine if there have been any changes since the previous research.

Our research found no studies that examined trends in the specific courses of study pursued by people with versus people without disabilities. This may be due to the difficulty in acquiring data that includes disability status, educational attainment, and field of study. Complete information is not available in the CPS or the ACS. However, the needed information may be collected from the US Census or from the National Survey of College Graduates, both of which are administered every ten years. Alternatively, data could be collected directly through a new survey. By gathering data on historical trends in post-secondary majors and courses of study for those with and without disability, researchers could project those trends into the future. Historical data may be gathered by examining graduation records, for example, though this would limit the subject field to those who completed their course of study.

9. **Analyze Supply and Demand for Workers with Disabilities**

Using projections of the demand for and supply of workers, it would be useful to combine two dimensions of analysis into a unified picture of how closely the skills and educational profiles of each population match the needs and demands of the labor market. Following Kruse and Schur’s methodology, the updated occupational projections will present the growth of occupations by education and skills requirements, illustrating what types of education will be in demand by employers. The educational attainment analysis will illustrate what trends exist in the educational attainment and courses of study chosen by those with and without disability, and how closely those trends match future demand. Synthesizing these analyses should shed light on the ability of the future labor supply to meet labor demand. Particular courses of study projected to be in high demand but low supply can then be recommended for the population with disabilities, providing this group with competitive employment skills.

We should note that to a certain extent, such analyses are already being performed at the state level by several state departments of planning. To the extent that these analyses are more mechanical than analytical, this study could provide a framework for making such analysis more accurate.

In summary, the occupation employment projection series of studies would:

- Obtain the most recent data from BLS, ACS or CPS, and O*Net.
- Assemble data on current and historical trends in college majors and trade/vocational school graduation, among those with and without disabilities.
- Use the new CPS disability items to refine the estimates of disability prevalence.
- Use changing trends to project the educational composition of the labor force through 2020.
- Create a crosswalk of academic schooling/training and jobs attained in specific industries.
- Project the supply of available labor for specific jobs and industrial sectors of the economy.
- Project expected changes in employment of people with disabilities through 2020 (assuming BLS data projections extend that far)
- Estimate the potential for increased employment of people with disabilities based on the ability requirements of occupations that are growing.
- Estimate the job loss for people with disabilities based on the ability requirements of jobs that are shrinking.
- Summarize the methodologies, data, and findings of the above educational and occupational trends.
- Using appropriate econometric methods, combine and compare the two projections to produce a single, unifying model of future educational supply and demand.
- Publish findings in an accessible manner, with attention drawn to those actionable conclusions, such as which areas of study will be in highest demand in the future but are currently underrepresented in the population with disabilities. This will ensure that the report can be used as an actionable resource by policy-makers, employers, educators, advocates, and those with disabilities.

**Employer Policies, Practices, Attitudes, and Costs**

Much legislation presumes that differential employment outcomes for those with and without disabilities occur due to employer behavior. Research is needed to determine the extent to which this is the case, as well as to suggest possible policy approaches to improve employment outcomes.

**10. Case Studies of Employers**

While relatively little systematic research into employer policies and practices has been conducted to date, researchers have begun to find that corporate culture and policy factors can have a significant effect on a company’s ability to employ and accommodate those with disabilities. In an attempt to assess corporate culture and policies towards those with disabilities, the Disability Case Study Research Consortium (DCSRC), led by Syracuse University’s Burton Blatt Institute, conducted case studies of six companies’ policies and practices regarding those with disabilities.259 In addition to providing specific data on employment policies, practices, and cultures, the resulting report included a “scientifically rigorous, standardized, relevant, and replicable method for conducting and benchmarking case studies of inclusive employment.”260 Based on this methodology, the consortium recommended that researchers:

- Conduct additional case studies with different size organizations in diverse market sectors to validate and refine benchmarks.
- Conduct longitudinal case studies to document changes over time.

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260 Ibid., 4.
Analyze specific benchmarks in terms of their impact on documented inclusive employment outcomes, which could enable shorter versions of these surveys to be validated.

These additional case studies would provide significant benefits for both the research community and for employers themselves. The research consortium has already shown that inclusivity in the workplace ultimately affects an organization’s “bottom-line” through employee tenure, productivity, and turnover, both for those with and without disabilities. Conducting further case studies and expanding this body of research can strengthen the business case for inclusive policies and provide a more comprehensive account of employer policies and their effects in different labor markets and categories.

Future case studies could be based on the methodology outlined by the DCSRC’s report. First, researchers would identify a broad sample of companies for case study inclusion. This sample should be based on a widely-accepted categorization system, such as that used in the O*Net database. Using a comprehensive, widely-cited categorization will ensure that the case studies include companies from a representative variety of industry sizes and types. It will also ensure that the results of these studies can be applied and compared to other researchers’ findings based on the categorization method used.

Once a representative sample of companies is identified, case studies should be conducted following the DCSRC’s methodology, which is composed of eight primary tools:

1. In-depth interviews with senior managers in human resources, compensation, and diversity
2. In-depth interviews with a sample of managers and supervisors
3. In-depth interviews with a sample of employees with disabilities
4. Focus groups of employees with disabilities
5. Focus groups of managers
6. A company-wide employee survey
7. Collection and analysis of written policies relating to disability and diversity (archival analysis)
8. Collection and analysis of available administrative data on disability accommodations and disability-specific initiatives

Data gathered during this process should be organized into individual case study reports for each company. These reports can then be compared across industries and labor categories to develop a comprehensive account of employer practices and their effects in various labor environments. The ultimate goal of this effort should be a “best practices” report providing recommendations for employers based on size, industry, and market. Such a report could be produced with cooperation from the private sector to ensure accuracy and effectiveness, and should be disseminated widely within the business community.

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261 DCSRC, 14.
11. Survey of Hiring Practices

Hiring practices have a direct effect on the employment of people with disabilities. This involves the content of job descriptions, announcements of vacancies, the availability of accommodations and the willingness of employers to provide them, the application process, the criteria used to screen job candidates, the criteria used to hire, and the attitudes of the hiring managers. Accessibility of information regarding all aspects of recruiting is also important. Since the Internet and Web-based hiring tools are increasingly being used in the labor market for job search and hiring, the accessibility of such tools to people with disabilities is essential, whether directly over the Internet or provided at employment counseling centers. The General Services Administration will be surveying federal agencies on how they are implementing the Section 508 regulations on technology accessibility standards. A survey of employer hiring practices should be conducted to obtain information regarding aspects of recruitment and hiring. This survey could split into two parts or efforts – one to survey employers in the private or non-federal sector and another to survey employers in federal agencies and their contractors. The results of the survey would be analyzed to determine opportunities for meaningful assistance and intervention to attain better outcomes for employers as well as for people with disabilities.

12. Analysis of Health Care Costs for Employers

Health care costs can be a significant barrier for employers to hire people, both with and without disabilities. For example, it is well known that many small businesses cannot afford to expand because the costs of providing health care coverage to new employees would be prohibitive. Health coverage can also be a barrier for employees themselves; preexisting conditions are often excluded from employer-based health coverage, so employees who do obtain insurance that covers their conditions may be hesitant to change jobs for fear of losing coverage. Despite this apparent evidence that the current US health insurance system creates barriers to employment for those with disabilities, there has been little research into the numerous and complex factors that create these barriers. A research project should therefore be implemented with the goal of identifying and analyzing the relationships between employment, insurance, and health care, both for those with disabilities and their employers.

To comprehensively address health coverage and employment for those with disabilities, this project should comprise two parts. The first task should focus on health insurance and costs from an employer perspective and consist of a comparative analysis of the cost differences in employer coverage of employees with and without disabilities. Researchers should first identify potential data sources and determine whether existing survey tools are capable of providing the data necessary for this task. Examples of potential data sources include the Medical Expenditure Panel Survey, the Bureau of Labor Statistics, other sources within the Department of Labor, and previous academic studies.

Once the necessary data has been gathered, it should be analyzed to identify and categorize the insurance costs to employers of hiring and retaining employees with and without disabilities. This analysis should, to the extent possible, differentiate disabilities by severity, duration, and other appropriate factors. Differentiation should also be made among employers by company
size, industry type, and primary labor market. Finally, costs should be identified both for hiring new employees and for continuing to cover existing employees. These distinctions will then allow a comprehensive comparison of insurance costs for a representative variety of employers.

The second part of this project should focus on insurance costs from an employee perspective, and consist of a new survey of employees both with and without disabilities. Because the data and analysis in the first part of this project will provide an objective assessment of insurance costs, this second part should focus on identifying the subjective perceptions of those costs for employees. That is, to what degree do employees feel tethered to an existing job because of the insurance it provides? Do unemployed people with disabilities believe that potential insurance costs serve as a disincentive for employers? To what extent do those with disabilities obtain health coverage from government entities because they cannot obtain employer-based coverage?

To address these and other relevant questions, the survey should be targeted to a representative sample of the population: employed and unemployed, both with and without disabilities. To the extent possible, the employed population should be further differentiated according to the categorization used in the first part of this project so as to allow effective cross-comparisons. Survey participants should be matched to program participation data, either through anonymous record-matching or through questions in the survey. Once participants are classified using these variables, the survey itself should be developed to gather a thorough account of participants’ views and perceptions regarding the relationship between employment and insurance in their lives, and particularly the potential barriers insurance can present. Once this data is gathered and analyzed, it should be synthesized with the first part of the project and presented in a single final report which comprehensively addresses the costs and barriers associated with health insurance and employment for those with and without disabilities.

In developing and implementing this research project, the potential for health reform must be take into account. It is increasingly likely that by the end of 2010 health reforms of some sort will have been passed on a federal level and implementation will have begun. As such, it is possible that this research project will take place while the insurance system itself is undergoing change. Researchers must therefore design the project with this consideration in mind. For example, it may be necessary to extend the duration of the data-gathering and survey efforts to ensure that data both before and after reform is included. Alternately, the project may be performed initially before reforms and subsequently repeated with new data gathered after reforms have been implemented. The selection of specific adjustments to the research plan will depend on the nature and timeline of the reforms when they are passed, and thus cannot be wholly accounted for now.

**Assistive Technology**

Assistive technology plays an increasing role in helping people with disabilities adapt to specific occupations. Research can help in paving the way for wider adoption of assistive technology both in exposing untapped potential as well as in developing best practices examples.
13. Employment-Based Functional Limitation Tool

A number of steps are needed to translate research into actionable policy, and to better facilitate the employment of those with disabilities. This includes pilot studies of programs based on research developments, planning tools for a variety of stakeholders, and software packages for workers with disabilities and their employers to help them better adopt and incorporate assistive measures. While many of these tools do not necessarily require new research or data-gathering efforts, they are fundamentally necessary to transform the employment of those with disabilities in the future. While there are currently tools available that attempt to quantify an individual’s functional limitations, they are not optimal, especially with regards to employment. Tools such as the Occupational Therapy Functional Assessment Compilation Tool (OT FACT) and the Assistive Technology Outcome Measure (ATOM), are currently being used in the field. However, these tools do not allow for users to identify an individual’s workplace limitations, such as using computer technology, customer/employee interactions, and reading (on screen and on paper). As a result, there is a significant need for new tools that allow employers and employees to search for assistive technology based on the functional need of the employee.

Researchers should approach the creation of an employment-based functional limitation tool by first reviewing the current tools on the market (two are listed above). An in-depth review of the current standards should produce a report on the pros and cons of the current technologies. Some major factors which should be reviewed during this analysis should be:

1. **Administration of the new tool** – How should the tool be administered? While most tools are now web-based, in-home assessments using paper-based surveys are also a possibility. Researchers should also decide who should administer the tool. Doctors and vocational rehabilitation specialists are qualified to administer such tool, but would disabled individuals feel comfortable admitting their limitations to another person? Would you get more accurate data if the disabled individual completed it themselves or with a family member?

2. **Specificity of the questions** – What is the optimal level of specificity for asking functional limitation questions? This should be weighed against the amount of time and focus required by the individual with disabilities. There might be a drop off in reliable answers if the tool is too specific. Analysis should be done to assure that the tool is gaining enough information about the individual without using up too much of his/her time.

3. **Ranking of functional independence** – The tool should be able to rank a person’s functional independence with regards to certain work-related topics. Researchers should investigate which work skills are most important now and be able to rank how independent an individual is for each of those groupings. The groupings should include reading, computer skills, and physical labor. During the study, other groupings should be identified by researchers.

By reviewing current tools and researching the topics above, researchers would be able to outline the best practices and requirements for the optimal functional limitation tool. This would lead to studies on how to create functional limitation tools useful for employees,
employers, and vocational rehabilitation specialists. Such tools would help assess individuals’ employment-related limitations.

Once a functional limitation tool has been sufficiently outlined, research should begin to focus on matching specific assistive technology to different limitations. For instance, if an individual cannot read fonts well on a computer screen, then a tool should list different assistive technology solutions for specific occupations. Since similar disabilities can affect individuals in different ways, the tool should not limit the options available for each individual. Pricing, availability, and reviews of each product should be available so that the best fit can be made for each disabled individual. At the outset, researchers can use www.AbleData.com as one source to obtain information on specific pieces of assistive technology.

Hiring Tools

Over the last decade, the Internet has emerged as a powerful tool both for employers and for job seekers. A great potential exists for extending this utility for people with disabilities who are seeking jobs they can do, as well as for employers who might overlook the pool of qualified potential workers comprised of people with disabilities.

14. Develop a Job Matching Interface for O*NET

The Occupational Information Network (O*NET) is a comprehensive occupational database system developed by the US Department of Labor, which replaced the Dictionary of Occupational Titles. Businesses, job-seekers, educators, students, counselors, and researchers use O*NET. The O*NET database serves as the foundation for O*NET OnLine, Career Exploration Tools, and Code Connector. O*NET OnLine is an interactive application for exploring and searching occupations.

In the interest of improving occupational mix, there is great promise in making the O*Net data more powerful as a planning tool for people with disabilities and policymakers. In particular, the data could be configured in a software package so a person with a disability (or vocational counselor) can input specific abilities or limitations and obtain a list of the most promising occupations. Such software would provide prospective employees and vocational counselors with an invaluable employment resource. By efficiently informing employees of the best occupations for their skills mix and disabilities, such software could not only increase employment but also increase positive worker-employer matches.

This effort should assess how accommodations will help people with disabilities enter growing occupations. Researchers would identify possible avenues for including the information gathered on functional limitations and accommodations directly into O*Net. Using information from the study above, researchers could work with the existing O*Net data structure to include a database on disability and assistive technology for the workplace. Research should then be completed to link different occupational skill sets with the work related functional limitations in the new assistive technology and disability database that would be integrated with O*Net. The final additions to O*Net should include questions asking about disabilities and the functional limitations that they cause in a person’s life. The output from this questionnaire would be similar to O*Net’s current format. A disabled individual could receive a list of employment
opportunities that do not require assistive technology, but they would also receive a list of potential employment opportunities that would require specific assistive technology. The addition of a new database for individuals with disabilities would also help employers and vocational rehabilitation specialists identify ways to accommodate those employees. To further assist employers and vocational rehabilitation specialists, links to information on government and state problems available to help fund those specific technologies may also be listed.
## Annotated Selected Bibliography*

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<th>Author/s/Reference</th>
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<tr>
<td>Acemoglu, Daron and J.D. Angrist. “Consequences of Employment Protection? The Case of the Americans with Disabilities Act.” <em>Journal of Political Economy</em> 109, No. 5 (2001): 915-957.</td>
<td>The article analyzes the drop in employment of workers with disabilities following implementation of the ADA. The authors find that the ADA is the likely cause of this drop, and that medium-sized firms were impacted more than small or large firms. The study also suggests that the ADA’s negative impact is due to costs of accommodation rather than the threat of litigation.</td>
<td>The ADA is the likely cause of the drop in the employment rate for disabled persons following the law’s implementation.</td>
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<td>Adler, Michele. Programmatic Definitions of Disability: Policy Implications. Washington, DC: US Department of Health and Human Services Office of the Assistant Secretary for Planning and Education, 1991.</td>
<td>This paper looks at programmatic definitions of disability for Federal disability programs by reviewing and examining major programmatic definitions of disability, describing complex eligibility processes by using SSDI program as an example, and discussing how some proposed changes in program definitions might affect future policy.</td>
<td>Discusses relationships between several programmatic definitions, and finds that definitions of disability will play a major role in order to derive the prevalence rates and evaluation data that will almost certainly be required to evaluate employment and other provisions of the ADA.</td>
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<td>Albrecht, Gary. “Forecasting the Earnings of a Partially Disabled Individual.” <em>The Journal of Legal Economics</em> (Jul. 1991): 50-57.</td>
<td>Explains what data are needed to implement the two-factor method for calculating the lost future earnings of a disabled individual, and formulates criteria used to judge the suitability of data from different sources.</td>
<td>Found that data from the US Department of Commerce’s <em>Labor Force Status and Other Characteristics of Persons with A Work Disability: 1981-88</em> may often satisfy the criteria better than other data.</td>
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<td>Baker, Michael, Mark Stabile, and Cahterine Deri. “What Do Self-Reported, Objective, Measures of Health Measure?” <em>The Journal of Human Resources</em> 39, No. 4 (Fall 2004): 1067-1093.</td>
<td>Evaluates the reliability of self-reported disability measures by matching a variety of self-reports of health with respondents’ medical records.</td>
<td>Finds that these measures are subject to considerable response error resulting in large attenuation biases when they are used as explanatory variables.</td>
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* Full citations for those sources not listed here can be found in the body of the report.
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<td>Baldwin, Marjorie L. and William G. Johnson. &quot;Labor Market Discrimination against Men with Disabilities.&quot; <em>The Journal of Human Resources</em> 29 (Apr. 1993): 1-19.</td>
<td>Uses the 1984 SIPP to estimate the extent of labor market discrimination against men with disabilities. Among the impaired, distinguishes between the handicapped (those subject to prejudice) and the disabled (those less subject to prejudice)</td>
<td>Found that wage differentials between the impaired and the nondisabled increased between 1972 and 1984. Also found the employment rate of the handicapped to be much lower than the disabled or nondisabled.</td>
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<td>Baldwin, Marjorie L. and William G. Johnson. &quot;Labor Market Discrimination against Women with Disabilities.&quot; <em>Industrial Relations</em> 34, No. 4 (Oct. 1995): 555-577.</td>
<td>This article estimates the extent of wage discrimination and, for the first time, the employment effects of wage discrimination, against women with disabilities.</td>
<td>Results suggest that wage discrimination related to disability tends to be most severe for a relatively small group of women with impairments against which prejudice is most intense.</td>
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<td>Baldwin, Marjorie L. and William G. Johnson. &quot;Labor Market Discrimination against Men with Disabilities in the Year of the ADA.&quot; <em>The Southern Economic Journal</em> 66, No. 3 (2000): 548-566.</td>
<td>This article estimates the extent of wage discrimination against men with disabilities in 1990, providing a reference that can be used to evaluate the impact of the ADA.</td>
<td>The results show large productivity-standardized wage differentials between disabled and nondisabled men that are weakly correlated with the strength of prejudice against different impairments.</td>
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<td>Baldwin, Marjorie L. and Steven C. Marcus. “Labor Market Outcomes of Persons with Mental Disorders.” <em>Industrial Relations</em> 46, No. 3 (July, 2007): 481-510.</td>
<td>Presents nationally representative estimates of unexplained employment and wage differentials between nondisabled persons and persons with mental disorders, a disabled group subject to exceptionally strong stigma. Estimates are provided for persons with mental disorders overall, and for subgroups of mood, anxiety, adjustment, and psychotic disorders.</td>
<td>Reveals distinctly different patterns of outcomes across subgroups, consistent with a severity gradient such that persons with adjustment disorders experience the most favorable outcomes, while persons with psychotic disorders experience the least favorable.</td>
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<td>Baldwin, Marjorie L. and Edward J. Schumacher. “A Note on Job Mobility among Workers with Disabilities.” <em>Industrial Relations</em> 41, No. 3 (July 2002): 430-441.</td>
<td>Uses data from the 1990 and '93 panels of the Survey of Income and Program Participation to analyze relationships between disability status and job mobility. Identifies individuals who experienced job separations over a 20-month period, and examines the effects of disability status on rates of job change and wage growth following a separation.</td>
<td>Disabled workers are more likely to experience involuntary job changes that nondisabled, but wage effects are unaffected by disability.</td>
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<td>Benítez-Silva, Hugo, Moshe Buchinsky, Hiu Man Chan, Sofia Cheidvasser, and John Rust. “How Large Is the Bias in Self-Reported Disability?” <em>Journal of applied Econometrics</em> 19 (2004): 649-670.</td>
<td>Re-examines the reliability of self-reported disability measures by examining a subsample of individuals who applied for disability benefits from the Social Security Administration.</td>
<td>Finds that the individuals’ evaluation of their disability is on average the same as the SSA evaluation of that disability, and are thus unable to reject the hypothesis that self-reported disability is an unbiased indicator of the SSA’s decision.</td>
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<td>Blanck, Peter, Lisa Schur, Douglas Kruse, Susan Schwuchau, and Chen Song. “Calibrating the Impact of the ADA’s Employment Provisions.” <em>Stanford Law &amp; Policy Review</em> 14, No. 2 (2003): 267-290.</td>
<td>The article first notes that previous studies of the ADA’s effect on employment rates reach differing conclusions because of a lack of consistency in defining disability. The authors go on to analyze current models and studies, and identify a number of additional challenges facing those who attempt to analyze the effects of the ADA.</td>
<td>Policy-makers should concern themselves with the limits of current models of the ADA’s impact before calibrating that law.</td>
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<td>Bound, John and Timothy Waidmann. “Accounting for Recent Declines in Employment Rates among Working-Aged Men and Women with Disabilities.” <em>Journal of Human Resources</em> 37 (2002): 231-250.</td>
<td>During the 1990s, while overall employment rates either remained roughly constant or rose, employment rates for people with disabilities fell. During the same period the fraction of the working-aged population receiving Social Security Disability Insurance (SSDI) benefits increased quite dramatically. The authors present evidence suggesting that the growth in the SSDI program can account for much of this decline.</td>
<td>The expansion of SSDI benefits facilitated the withdrawal from the workforce of many disabled men and women, but this does not necessarily impugn that expansion.</td>
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<td>Boyle, Mike A. “Social Barriers to Successful Reentry into Mainstream Organizational Culture: Perceptions of People with Disabilities.” Human Resource Development Quarterly 8, No. 3 (1997): 259-268.</td>
<td>The study first identifies that, once employed, workers with disabilities still face many challenges. One of the challenges for workers with disabilities in social interaction in an office setting. Since social interaction may be stressful, workers without disabilities may be uncomfortable around the disabled employee. This also can cause skepticism and doubt when an employer has the opportunity to hire a disabled worker.</td>
<td>Social interaction problems between workers with and without disabilities may cause employers to hire fewer workers with disabilities.</td>
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<td>Brault, Matthew, Sharon Stern, and David Raglin. 2006 American Community Survey Content Test Report P.4: Evaluation Report Covering Disability. Washington, DC: US Census Bureau, 2007.</td>
<td>This publication reports on the testing of new ACS measures aimed at better identifying specific portions of the population of people with disabilities.</td>
<td>The proposed changes result in better questions, in terms of reliability and response and their ability to better identify the population of persons with disabilities.</td>
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<td>Bruyère, Susanne M. Disability Employment Policies and Practices in Private and Federal Sector Organizations: Executive Summary. Ithaca, NY: Cornell University, 2001.</td>
<td>Uses two surveys of employers to examine employer practices in response to the ADA, in order to address the employment inequity between the disabled and nondisabled.</td>
<td>While much progress has been made, barriers remain to the recruitment, hiring, retention, and career advancement of adults with disabilities.</td>
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<td>Bruyère, Susanne M. and William Erickson. E-Human Resources: A Review of the Literature and Implications for People with Disabilities. Ithaca, NY: Cornell University Program on Employment and Disability, 2001.</td>
<td>The purpose of this Department of Education-funded effort is to investigate the impact of the ADA on the employment practices of small, medium, and large private sector businesses, so as to assist in the identification of employment practices that have been the most challenging in implementing the ADA, and to identify interventions that can be used by the private sector employers and persons with disabilities to address these employment practices.</td>
<td>The integrated solutions offered by E-HR have the potential to reduce data entry, minimize errors, and cut down the time required to maintain the overall HR infrastructure. Applications such as job postings, employee benefit information, and online training and registration are “value added” offerings for employees as well.</td>
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<td>Bruyère, Susanne M., William Erickson, and Joshua Ferrentino. “Identity and Disability in the Workplace.” <em>William and Mary Law Review</em> 44, No. 3 (2001): 1173-1196.</td>
<td>The purpose of this article is to examine and discuss factors within the workplace that may affect the ability of individuals with disabilities to access and retain employment, using Bruyère’s 2000 article as a basis for further analysis.</td>
<td>Suggests that top management’s commitment to disability nondiscrimination is a key factor in reducing discriminatory barriers. A review of the literature suggests additional ways to approach continuing attitudinal issues in the work environment.</td>
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<td>Burge, Philip, Hélène Ouellette-Kuntz, and Rosemary Lysaght. “Public Views on Employment of People with Intellectual Disabilities.” <em>Journal of Vocational Rehabilitation</em> 44, (2007): 29-37.</td>
<td>This article presents the results of a study conducted by an alliance of researchers and community partners to elucidate public perceptions regarding work inclusion of people with an intellectual disability.</td>
<td>A majority of respondents believed that some form of integrated work is best for most adults with an intellectual disability. About 87% of respondents believed that hiring people with intellectual disabilities would not negatively affect the image of workplaces.</td>
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<td>Given the growth in the young disabled population, this article examines current and potential future policies that could transfer the emphasis of disability assistance programs from transfers to work assistance, thereby reducing young workers’ dependence on benefits.</td>
<td>Until both the disability community and public policymakers take the risk of this shift, young people with disabilities can look forward to a life of dependency.</td>
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<td>Burkhauser, Richard V., Mary C. Daly, Andrew J. Houtenville, and Nigar Nargis. <em>Economics of Disability Research Report #5: Economic Outcomes of Working-Age People with Disabilities over the Business Cycle – An Examination of the 1980s and 1990s.</em> Ithaca, NY: Cornell University, 2001.</td>
<td>Examines the rate of employment and the household income of the working-age population (aged 25-61) with and without disabilities over the business cycles of the 1980s and 1990s using data from the March Current Population Survey and the National Health Interview Survey.</td>
<td>Finds that while the employment of working-age men and women with and without disabilities exhibited a procyclical trend during the 1980s business cycle, this was not the case during the 1990s expansion, during which time employment of the disabled declined.</td>
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<td>Burkhauser, Richard V., Mary C. Daly, and Andrew J. Houtenville. “How Working age People with Disabilities Fared over the 1990s Business Cycle.” In Ensuring Health and Income Security for an Aging Workforce, edited by Peter P. Budetti, Richard V. Burkhauser, Janice M. Gregory, and H. Allan Hunt. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, 2002.</td>
<td>Uses data from the CPS March Supplement to compare employment trends among workers without disabilities to those with disabilities in the 1990s.</td>
<td>Finds that while the longest peacetime economic expansion in United States history has increased the economic well-being of most Americans, the majority of working age men and women with disabilities have been left behind.</td>
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<td>Uses CPS and Census data to examine the levels and trends in the poverty rate of working-age people (aged 21-64) with and without disabilities.</td>
<td>Finds that the 1990s, while a great period for those without disabilities, in terms of net income growth and poverty reduction, was not so for working age people with disabilities.</td>
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<td>Burkhauser, Richard V., Andrew J. Houtenville, and David C. Wittenburg. A User Guide To Current Statistics on the Employment of People with Disabilities. Ithaca, NY: Cornell University, 2003.</td>
<td>Examines measures, estimates, and models used to study employment rates among the disabled in order to determine to what extent the decline in employment is real rather than an artifact of the data.</td>
<td>Finds that the decline is real, and not an artifact.</td>
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<td>Burkhauser, Richard V., and David C. Wittenburg. “How Current Disability Transfer Policies Discourage Work: Analysis From the 1990 SIPP.” <em>Journal of Vocational Rehabilitation</em> 7 (1996): 9-27.</td>
<td>Briefly describes the recently-introduced Job Openings and Labor Turnover Survey (JOLTS), and then discusses how JOLTS data will help enrich analysis of the US labor market and the economy as a whole.</td>
<td>As a single source for directly measured data on job openings, hires, and separations, JOLTS statistics can be used as indicators of general economic conditions, and are important tools for considering the implications of economic policies on unemployment and the labor market.</td>
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<td>Identified specific principles for successfully rehabilitating people with severe mental disabilities. These principles include rating participants’ job behaviors and attitudes as well as placing participants in competitive or supported employment within the duration of the training to accelerate their training experience.</td>
<td>Describes a series of principles on the vocational rehabilitation of people with severe mental illness.</td>
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<td>Cook, Judith A. <em>Research-Based Principles of Vocational Rehabilitation for Psychiatric Disability</em>. Chicago, IL: University of Chicago National Research and Training Center on Psychiatric Disability (2007).</td>
<td>The economic letter analyzed the decline in the importance of work as a source of household income among working-age men with disabilities in the 1990s. Unlike the 1980s, the employment of working-age men with disabilities fell continuously over the 1990s. While substantial increases in disability transfer income in the 1990s replaced a significant fraction of the lost labor earnings, it did not prevent most of the households of men with disabilities from being worse off than their counterparts in 1989 and from losing economic ground relative to the rest of the male population.</td>
<td>During the 1990s, while economic expansion seemed to reach all socioeconomic groups, workers with disabilities were adversely affected.</td>
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<td>Day, Hy, Jeffrey Jutai, William Woolrich, and Graham Strong. “The Stability of Impact of Assistive Devices.” <em>Disability and Rehabilitation</em> 23, No. 9 (2001): 400-404.</td>
<td>This study tested the hypothesis that the impact of the adoption of an assistive device would wane with time, as the user becomes more adapted to the device.</td>
<td>Showed that the positive impact of the device did not diminish significantly for those who retained the use of the device. Provides clinicians with a reliable and economical method for assessing the role of psychosocial factors in the retention or abandonment of an AD.</td>
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<td>DeLeire, Thomas. “Changes in Wage Discrimination against People with Disabilities: 1984-93.” <em>Journal of Human Resources</em> 36 (2000): 144-158.</td>
<td>Uses a group of health-impaired workers who self-report in the SIPP that their productivity is not affected by their impairment to separately measure the effects of discrimination from the effects of poor health on earnings in 1984 and 1993.</td>
<td>Finds that, in 1984, only 3.7 percentage points of the earnings gap is due to discrimination and the amount of discrimination did not decrease by 1993. Although discrimination did not change over the 1984 to 1993 period, the negative effects of poor health on the earnings of people with disabilities fell substantially.</td>
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<td>DeLeire, Thomas. “The Wage and Employment Effects of the Americans with Disabilities Act.” <em>Journal of Human Resources</em> 35 (2000): 693-715.</td>
<td>The article reviews available statistics and previous studies, and notes that the employment rate for the disabled declined significantly during the 1990s. Although other researchers offer causes for this decline beyond the ADA, the author argues that these alternatives are not sufficient given the severity of the decline.</td>
<td>The severity and timing of the decline in employment strongly suggests that the ADA serves as a disincentive for employers to hire workers with disabilities.</td>
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<td>Disability Case Study Research Consortium. <em>Conducting and Benchmarking Inclusive Employment Policies, Practices, and Culture.</em> Syracuse, NY: Burton Blatt Institute, Centers of Innovation on Disability, 2008.</td>
<td>Establishes a conceptual framework to evaluate inclusive employment policies and practices in for-profit and not-for-profit corporations and organizations of all sizes across market sectors. Then reports on findings from six sample case studies of corporate culture’s affect on disability employment.</td>
<td>Workplace climate makes a great difference not only in employee experiences, but also in workplace performance. Fully using the abilities of all employees, including those with disabilities, depends not just on overall company policies but on the attitudes and practices of managers and supervisors.</td>
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"Restricted Access: A Survey of Employers About People with Disabilities and Lowering Barriers To Work." Work Trends Survey 3, No. 6. New Brunswick, NJ: Rutgers University, 2003. | The report, based on survey data from 501 businesses, reveals the some of the various obstacles that workers with disabilities face on a daily basis. The report outlines the experiences and attitudes of the surveyed businesses have towards workers with a disability. Some findings from the study include only 25 percent of employers have at least one worker with a disability, 15 percent of businesses are uncomfortable working with individuals who have a disability, and 30 percent feel the disabled worker could not adequately complete the work required of them. | Report based on a survey of 501 businesses that describes the attitudes of employers towards workers with disabilities |
<p>| Domzal, Christine, Andrew Houtenville, and Ravi Sharma. Survey of Employer Perspectives on the Employment of People with Disabilities: Technical Report. Prepared for the US Department of Labor, Office of Disability Employment Policy. McLean, VA: CESSI, 2008. | The objective of this nationally representative survey was to inform the development and promotion of policy and practice by comparing employer perspectives across various industries and within companies of varying sizes. The survey emphasized current attitudes and practices of employers in 12 industry sectors, including some high growth industries as projected by the Bureau of Labor Statistics. | Finds that future efforts should be focused on small- and medium-sized companies, for whom the challenges posed by hiring workers with disabilities (e.g. fiscal, legal, etc.) are greater. |
| Driscoll, Michelle P., Sylvia A. Rodger, and Desleigh M. de Jonge. &quot;Factors that Prevent or Assist the Integration of assistive Technology into the Workplace for People with Spinal Cord Injuries: Perspectives of the Users and their Employers and Co-Workers.&quot; Journal of Vocational Rehabilitation 16 (2001): 53-66. | Examines the barriers faced by people with Spinal Cord Injuries when integrating their Assistive Technology into the workplace, as well as factors that contribute to successful integration. | Barriers to integration include funding the technology, time delays, information availability, training and maintenance, the attitudes of the parties involved, the level of responsibility they assumed in the process, and their knowledge and awareness of AT and AT services, as well as issues associated with the work environment. |
| Elinson, Lynn and William D. Frey. Evaluation of Disability Employment Policy Programs: Task 10 Interim Report on ODEP Demonstration Programs: Accomplishments and Issues Identified by the Independent Evaluation. Rockville, MD: Westat, 2005. | Aims to gauge the program effectiveness, measure effectiveness to build workforce development system capacity, and document systems change of ODEP. During their external evaluation, Westat developed key indicators for each of the systems change areas, then examined the inputs and processes developed by all demonstration programs. | Found that demonstration programs have segued from building capacity to implementing a wide range of activities aimed at making systems change and that the programs heading towards the end of their lifecycle are directing their efforts toward improving processes to achieve improved outputs. |</p>
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<td>Study of compensation and veterans with PTSD. Study concluded that veterans applying for compensation tend to exaggerate their illness.</td>
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<td>Examines data gathered by the ACS, focusing on the effects of cognitive disability on earnings and employment. Employment levels are translated into worklife expectancies and the method of conversion through use of a joint probability of life, participation, and employment is examined</td>
<td>The economic consequences of traumatic brain injury can be substantial, even for mild cases. In addition, represents an excellent source from which to examine earnings and employment levels for those with a cognitive disability.</td>
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<td>Hale, Thomas W., H.V. Hayghe, and J.M. McNeil. “Labor Market Activity.” Monthly Labor Review (Sept. 1998): 3-12.</td>
<td>Analyzes data from the Survey of Income and Program Participation to determine whether lower labor force participation rates among the severely disabled are due to disability. The authors find that even when comparing by age groups, the severely disabled are less likely to participate in the labor force.</td>
<td>Persons with disabilities had lower rates of labor force activity, were more restricted in their choice of occupation, were less likely to work full time, and were less likely to work in higher paying occupations.</td>
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<td>Hignite, Karla B. “The Accessible Association.” Association Management 52, (Dec. 2000), 36-43.</td>
<td>This article reviews many of the internal problems companies have that hinder workers with disabilities to gain employment. This review includes those obstacles of employment that have already been alleviated due to increases in assistive technology, physical environment adaptations, and alternate ways to complete tasks.</td>
<td>ADA laws are not widely understood by employers. Better knowledge of the rules and regulations may increase disabled employment.</td>
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<td>Holcomb, Pamela and Burt S. Barnow, “Serving People with Disabilities through the Workforce Investment Act’s One-Stop Career Centers.” Ticket to Work and Work Advisory Panel (November 2004).</td>
<td>This paper examines the extent to which people with disabilities are served through WIA’s One-Stop system and discusses its capacity to serve people with disabilities who desire employment assistance, both in terms of common barriers to access as well as promising strategies to improve service delivery to people with disabilities.</td>
<td>Enrollment of those with disabilities is very low, and while significant improvement has been made, several barriers remain.</td>
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<td>Hotchkiss, Julie L. “A Closer Look At The Employment Impact of the Americans with Disabilities Act.” Journal of Human Resources 34 (2004): 887-911.</td>
<td>The article argues that while employment rates for the disabled declined during the 1990s, this was not because of disabled individuals leaving the workforce. Rather, it was due to the reclassification of previously nondisabled individuals as disabled. In addition, the employment rates for certain groups of the disabled may have increased in this period.</td>
<td>The 1990s’ decline in employment rates for the disabled was not due to workers with disabilities losing employment, but due to greater number of workers being classified as disabled.</td>
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<td>Hotchkiss, Julie L. “Growing Part Time Employment Among Workers with Disabilities.” <em>Economic Review</em>. Atlanta: Federal Reserve Bank of Atlanta, 3Q 2004.</td>
<td>After noting that part-time employment among workers with disabilities rose during the 1990s, the article examines this change and compares it to part-time employment among the nondisabled to determine whether part-time employment tended to be involuntary for the disabled, which would indicate that such workers were being marginalized by employers.</td>
<td>The rise in part-time employment was found to be largely voluntary, indicating that such employment became more attractive to workers with disabilities in this period.</td>
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<tr>
<td>Houtenville, Andrew and R.V. Burkhauser. <em>Did The Employment of People with Disabilities Decline in the 1990s, and Was the ADA Responsible?</em> Ithaca, NY: Cornell University, 2004.</td>
<td>The brief examines two studies conducted since Acemoglu &amp; Angrist’s 2001 report, which attempt to replicate that study’s conclusions regarding ADA’s negative impact. While acknowledging that employment rates did decline for the disabled in the 1990s, the authors conclude that the ADA was not the cause. The authors note that the decline began before the ADA’s implementation, and was more likely due to changes in Social Security.</td>
<td>Although employment rates among the disabled did decrease in the 1990s, this decline was not due to the ADA.</td>
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<td>Houtenville, Andrew J., Erickson, W. A., &amp; Lee, C. G. <em>Disability Statistics from the Current Population Survey (CPS)</em>. Ithaca, NY: Cornell University Rehabilitation Research and Training Center on Disability Demographics and Statistics (StatsRRTC). Retrieved July 7, 2008 from <a href="http://www.disabilitystatistics.org">www.disabilitystatistics.org</a></td>
<td>The study reviews disability statistics from the Current Population Survey. Some of the key findings of the study include the employment rate for individuals with disabilities varies with individuals with sensory disabilities reporting a 31.4 percent employment rate and people with mental disabilities reporting a 13.5 percent rate.</td>
<td>Statistical overview of workers with disabilities</td>
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<td>Houtenville, Andrew J., David C. Stapleton, Robert R. Weathers, and Richard V. Burkhauser. <em>Counting Working-Age People with Disabilities: What Current Data Tells Us and Options for Improvement</em>. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, 2009.</td>
<td>The overarching objective of this book is to support and facilitate efforts to improve statistics and data on working-age people with disabilities. Provides a description of available survey tools, current data findings, and possible strategies for improving the data collection system.</td>
<td>Strategies for closing gaps in the current body of data include: adopting a universal definition of disability, increasing the number of surveys that specifically identify those with disabilities, and improved modes of comparing multiple surveys.</td>
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<td>Interagency Committee on Disability Research. <em>Employer Perspectives on Workers with Disabilities: A National Summit To Develop a Research Agenda</em>. Washington, DC: Department of Labor, Office of Disability Employment Policy, 2007.</td>
<td>Gathered researchers and business leaders, as well as service providers, policy-makers, and advocates, to guide the ISE in setting a national research agenda focused on the needs of American businesses in employing people with disabilities.</td>
<td>Developed a series of 10 strategies and recommendations for stake-holders to improve the improvement and dissemination of demand-side research.</td>
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<td>Job Accommodation Network. <em>Fact Sheet Series: Workplace Accommodations: Low Cost, High Impact</em> (2007). Available at <a href="http://www.jan.wvu.edu/media/LowCostHighImpact.doc">http://www.jan.wvu.edu/media/LowCostHighImpact.doc</a> (Accessed May 1, 2009).</td>
<td>Attempts to go “beyond the anecdotal information” and more rigorously assess the costs and benefits to employers of providing accommodations to workers with disabilities.</td>
<td>Shows that the cost of accommodation is often much lower than employers expect.</td>
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<td>Jolls, Christine. “Identifying The Effects of the Americans with Disabilities Act Using State-Law Variation: Preliminary Evidence on Educational Participation Effects.” <em>American Economic Review</em> 94, No. 2 (May 2004): 447-453.</td>
<td>Provides preliminary evidence on the possibility that the ADA increased participation in educational opportunities by individuals with disabilities in states in which the ADA’s employment discrimination provisions were a substantial innovation compared to states in which they were not.</td>
<td>Based on CPS data, finds qualified support for the idea that movement in disabled educational participation after the ADA’s enactment was positively correlated with the degree to which that law’s provisions were a substantial innovation.</td>
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<td>Jolls, Christine and J.J. Prescott. “Disaggregating Employment Protection: The Case of Disability Discrimination.” NBER Working Paper Series, 10740. Cambridge, MA: National Bureau of Economic Research, 2004.</td>
<td>This paper exploits state-level variation in pre-ADA legal regimes governing disability discrimination to separately estimate the employment effects of each of the ADA’s two primary substantive provisions.</td>
<td>Find strong evidence that the immediate post-enactment employment effects of the ADA are attributable to its requirement of “reasonable accommodations” rather than to its potential imposition of firing costs for such employees. Also finds that declining disabled employment in the immediate post-ADA period reflects other factors rather than the ADA itself.</td>
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<td>Kaye, H. Stephen. “Is The Status of People with Disabilities Improving?” Disability Statistics Abstract No. 21. Washington, DC: US Department of Education, National Institute on Disability and Rehabilitation Research, 1998.</td>
<td>Reviews the trends of disabled individuals in various categories, which include employment, income, and social barriers. Comparisons between disabled and nondisabled individuals reveal that the disabled group is at a disadvantage in all categories.</td>
<td>Disabled individuals tend to earn less money, live alone, and eat out less than the average person. The study revealed that there was no increase in the well-being of disabled individuals from 1988-1998.</td>
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<td>Kaye, H. Stephen. Improved Employment Opportunities for People with Disabilities. Washington, DC: US Department of Education, Office of Special Education and Rehabilitative Services, National Institute on Disability and Rehabilitation Research, 2003.</td>
<td>Uses data gathered by the NHIS and CPS to find employment trends of those with and without disabilities, particularly in order to determine the effectiveness of the ADA and other disability assistance policies.</td>
<td>Confirms prior findings of no improvement in the overall employment rate of working-age adults with disabilities following passage of the ADA, but suggests that the overall rate of employment may not be the best measure of job opportunities, because it includes many people unlikely to acquire jobs regardless of any improvement in employer attitudes or workplace accessibility.</td>
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<td>Kim, Pan S. “Disability Policy: An Analysis of the Employment of People with Disabilities in the American Federal Government.” Public Personnel Management 25, No. 1 (1996): 73-88.</td>
<td>Examines recent employment data to assess the employment status of people with disabilities in the Federal government, from various perspectives such as work force distribution, grade level, placement, and advancement.</td>
<td>Finds that disabled employees are gradually increasing their share in Federal government, and that there is significant evidence of progress toward equality in placement and advancement.</td>
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<td>Klemmer, Katherine. “JOLTS Annual Story Job Openings and Hires Decline in 2008.” Monthly Labor Review 132, No. 5 (2009).</td>
<td>Attempts to assess the quality of life of people with disabilities on a wide range of critical dimensions, to measure the gaps between people with and without disabilities on these indicators, and to track them over time.</td>
<td>The general implication of the indicators is that progress is being made, but that people with disabilities remain at a disadvantage in most areas.</td>
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<td>Krane, David and Kristina Hanson. N.O.D./Harris 2004 Survey of Americans with Disabilities (Study No. 20835). New York: Harris Interactive (2004).</td>
<td>Attempts to assess the quality of life of people with disabilities on a wide range of critical dimensions, to measure the gaps between people with and without disabilities on these indicators, and to track them over time.</td>
<td>The general implication of the indicators is that progress is being made, but that people with disabilities remain at a disadvantage in most areas.</td>
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<td>Krueger, Alan, Douglas Kruse, and Susan Drastal. “Labor Market Effects of Spinal Cord Injuries in the dawn of the Computer Age.” NBER Working Paper Series: No. 5302. Cambridge, MA: National Bureau of Economic Research (Oct. 1995).</td>
<td>Focuses on workers with spinal cord injuries in order to narrow field to those with limited mobility in order to determine how such injuries affect employment and earnings, and whether the development of computer technologies have affected the employment impairment caused by such injuries.</td>
<td>SCIs are found to cause a severe employment handicap, and knowledge of computers is associated with better employment outcomes in those with SCIs.</td>
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<td>Kruse, Douglas L. “Demographic, Income, and Health Care Characteristics, 1993.” Monthly Labor Review (Sept. 1998): 13-22.</td>
<td>Using the SIPP data, the study compares disabled and nondisabled populations by various demographic measures to determine how disability affects various employment outcomes, and to determine which segments of the population face the greatest difficulties due to their disabilities.</td>
<td>Due to lower rates of employment and other labor market difficulties, working-age persons with disabilities tend to have lower income and are more likely to live in poverty than persons without disabilities.</td>
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<td>Kruse, Douglas L. and Lisa Schur. “Employment of People with Disabilities following the ADA,” Industrial Relations 42, No. 1 (Jan. 2003): 31-66.</td>
<td>Uses data from the SIPP to examine trends in the employment of those with disabilities following passage of the ADA.</td>
<td>Finds decreased employment among those reporting work disabilities immediately following the ADA’s passage, but increased employment when using a more appropriate measure for ADA coverage.</td>
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<td>Kruse, Douglas L. and Lisa Schur. “Does The Definition Affect The Outcome: Employment Trends Under Alternative Measures of Disability.” In The Decline in Employment of People with Disabilities: A Policy Puzzle, edited by David C. Stapleton and Richard V. Burkhauser. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research (2003): 279-300.</td>
<td>Reviews problems in defining and measuring disability, focusing on potential problems with the work limitation measure that has been the basis for most studies on the ADA. Then describes alternative measures and what they reveal about compositional changes among those reporting work limitation at the time the ADA was implemented.</td>
<td>Finds that disability measures do make a difference in estimated employment patterns surrounding the implementation of the ADA, interjecting a strong caveat in interpretations that the ADA is harming employment of people with disabilities.</td>
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<td>Kruse, Douglas L. and Lisa Schur. “Projecting Potential Demand for Workers with Disabilities,” <em>Monthly Labor Review</em> (Forthcoming).</td>
<td>Matches BLS occupational projections for 2006-2016 to Census data on disability prevalence and O*Net data on ability requirements to create (a) baseline projections of the expected changes in employment of people with disabilities, and (b) estimates of the potential for increased employment of people with disabilities based on the ability requirements of growing occupations.</td>
<td>Finds that the disabled are underrepresented in fast-growing fields, and provides tools for reversing this trend.</td>
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<td>Kunkel, Suzanne B. and Robert A. Applebaum. <em>Estimating The Prevalence of Long-Term Disability for an Aging Society</em>. Washington, DC: US Department of Health and Human Services Office of the Assistant Secretary for Planning and Education, 1991.</td>
<td>Using a variety of data and previous research, projects the prevalence of disability in the future, along with the need for long term care for the aging population. Also discusses the policy implications of these projections.</td>
<td>Finds that, regardless of the scenario projected, by the year 2040 when the baby boomers reach their 80’s and 90’s, the number of older Americans with long-term disabilities will have increased significantly.</td>
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<td>Langton, Anthony J. and Hunter Ramseur. “Enhancing Employment Outcomes through Job Accommodation and Assistive Technology Resources and Services.” <em>Journal of Vocational Rehabilitation</em> 16 (2001): 27-37</td>
<td>Examines the steps and processes necessary to incorporate assistive technology into employment assistance for the disabled.</td>
<td>The process is most effective when the consumer is at the focal point of the assessment that includes a thorough job analysis of the essential functions of the job as well as an understanding of the functional capacities of the potential employee.</td>
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<td>Livermore, Gina A., Mark W. Novak, and David C. Wittenburg. <em>Policies and Programs Affecting the Employment of People with Disabilities: Policy Brief</em>. Ithaca, NY: Cornell University, 2000.</td>
<td>Summarizes the wide range of Federal programs and government policies that influence the employment and program participation decisions of people with disabilities and current research initiatives related to these programs and policies.</td>
<td>Despite the large number of programs and policies directed towards people with disabilities, there is no system that provides a universal source of benefits and services to this population.</td>
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<td>Manton, Kenneth G. and XiLang Gu. “Changes in the Prevalence of Chronic Disability in the United States Black and Nonblack Population above Age 65 from 1982 To 1999.” <em>Proceedings of the National Academy of Sciences of the United States of America</em> 98, No. 11 (2001): 6354-6359.</td>
<td>In response to disagreement in the academic community over what conclusions can be drawn from the reported reduction in elderly disability during the 90s, this paper reports results from the 1999 National Long-Term Care survey on disability trends from 1982 through 1999.</td>
<td>It finds that disability continued to decline in the 1994 to 1999 period, and that the decline was greater in the 1990s than in the 1980s.</td>
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<td>Marenghi, Catherine. “Dispelling Cost Myths about Technologies for the Disabled.” <em>Computerworld</em>, Nov. 25, 1991. 66-67.</td>
<td>The article discusses the arguments as to why assistive technology is not a cost-effective tool for helping disabled individuals. The author makes the case that assistive technology can aid individuals with daily activities and also work related functions.</td>
<td>Explains cost effective assistive technology can be for disabled individuals.</td>
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<td>Mottl, Judith N. “New Tools Boost Number of Disabled in IT Ranks.” <em>InformationWeek</em> (May 14, 2001).</td>
<td>This article goes into detail on the technological advances made to help the disabled. Specifically goes over various technological innovations and how they help a disabled worker feel more comfortable at work.</td>
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<td>Nelson, William J. Jr. “Disability Trends in the United States: A National and Regional Perspective.” <em>Social Security Bulletin</em> 57, No. 3 (Fall, 1994): 27-41.</td>
<td>This article examines the change in the growth of SSDI and SSI participation since 1975, and provides an overview of key legislative changes occurring during that period.</td>
<td>Argues that it is often necessary to look beneath national-level data to understand changes that are taking place, and the reasons for such changes.</td>
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<td>Peck, Bob and Lynn Trew Kirkbride. “Why Businesses Don’t Employ People with Disabilities.” <em>Journal of Vocational Rehabilitation</em> 16 (2001): 71–75.</td>
<td>This article provides a business perspective and shares the unspoken fears within the employer community related to the hiring and advancement of people with disabilities. It discusses the importance of understanding these fears and the strategies that will be necessary for combating these issues.</td>
<td>Suggests several strategies for improving the marketing efforts of job placement specialists.</td>
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<td>Popovich, Paula M., Charles A. Scherbaum, Karen L. Scherbaum, and Natale Polinko. “The Assessment of Attitudes toward Individuals with Disabilities in the Workplace.” <em>The Journal of Psychology</em> 137, No. 2 (2003): 163-177.</td>
<td>Conducted two studies to develop and test measures that assess beliefs about what constitutes a disability, affective reactions to working with individuals with disabilities, and beliefs about the reasonableness of workplace accommodations.</td>
<td>Find substantial differences in what is considered a disability by various groups, and that these conditions do not necessarily match those covered by the ADA.</td>
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<td>Reynolds, Scott, Neil Ridley, Carl E. Van Horn. “A Work-Filled Retirement: Workers’ Changing Views on Employment and Leisure.” <em>Worktrends</em> 8.1. New Brunswick, NJ: Rutgers University, August 2005.</td>
<td>This report analyzes data from a survey of American workers on their views of retirement and how older workers are treated in the workplace. Some general findings of the study are that only 13% of workers expect to completely stop working after the age of 65, employers tend to favor younger people when layoffs occur, and that economic problems have caused older workers to become less confident about their current retirement plans.</td>
<td>National survey of the US workforce. Only 13% of workers expect to stop working completely at the age of 65.</td>
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<td>Russell, J. Neil, Gerry E. Hendershot, Felicia LeClere, Jean Howie, and Michele Adler. “Trends and Differential Use of Assistive Technology Devices: United States, 1994.” <em>Advance Data</em> 292. Washington, DC: Centers for Disease Control, November 13, 1997.</td>
<td>This report presents data on annual estimates of the prevalence of use of selected assistive technology devices for vision, hearing, mobility, and orthopedic impairments, including missing limbs. Also presented are statistics on trends in the prevalence of use of selected mobility assistive technology devices for the years 1980, 1990, and 1994.</td>
<td>Assistive technology use has increased because of population size, age composition changes, and a change in the rate of use. Medical and technological advances along with public policy initiatives have also contributed to increased usage.</td>
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<td>Schur, Lisa A. “Barriers or Opportunities? The Causes of Contingent and Part-Time Work Among People with Disabilities.” <em>Industrial Relations</em> 42, No. 4 (Oct. 2003): 589-622.</td>
<td>Examines why workers with disabilities are twice as likely to have part-time or non-standard employment than nondisabled workers. Uses the CPS, SIPP, and a third survey to explore potential explanations and determine whether the gap is caused by discrimination or earnings limits set by benefits programs, or by the health impact of the disabilities.</td>
<td>Health problems are found to be the primary cause of non-standard work, as opposed to discrimination or benefits programs’ earnings limits.</td>
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<td>Schur. Lisa A. “Dead End Jobs Or A Path To Economic Well Being?” <em>Behavioral Sciences and The Law</em> 20 (2002): 601-620.</td>
<td>Examines how non-standard jobs affect the economic well-being of workers with disabilities, and what happens when non-standard workers use lawsuits to challenge discrimination and improve their economic opportunities. uses data from the Current Population Survey, the Survey of Income and Program Participation, and a Lexis search of legal cases to help answer these questions.</td>
<td>Non-standard work is more common among workers with disabilities, and negative outcomes such as lower pay are more common for workers with disabilities without non-standard jobs. Lawsuits are found to be largely unsuccessful.</td>
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<td>Schur. Lisa A. “The Difference A Job Makes: The Effects of Employment Among People with Disabilities.” <em>Journal of Economic Issues</em> 36, No. 2 (June 2002): 1-9.</td>
<td>Uses the SIPP and two recent national household surveys to provide new evidence on the effects of employment for people with and without disabilities. Comparisons are made not only on economic measures but also on a variety of social, psychological, and political measures in order to gain a more complete picture of the particular value that employment can have for people with disabilities and of the importance of policies to increase their job opportunities.</td>
<td>Finds that employment has especially beneficial consequences for the disabled, not only by reducing poverty but also by reducing the social impact of disability.</td>
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<td>Schur. Lisa A. “Is There Still A ‘Double Handicap?’” In <em>Gendering Disability</em>, edited by Bonnie G. Smith and Beth Hutchison, 253-271. New Brunswick, NJ: Rutgers University Press, 2004.</td>
<td>Examines the extent to which women with disabilities continue to face gaps in employment, income, education, access to public services and programs, and measures of psychological well-being compared both with men with disabilities and women without disabilities.</td>
<td>Finds that, in important respects, women with disabilities still face a double handicap, as evidenced by their continued low employment and income levels and high poverty rates, relative both to women without disabilities and men with disabilities.</td>
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<td>Schur. Lisa A., Douglas Kruse, Joseph Blasi, Peter Blanck. “Is Disability Disabling in All Workplaces? Workplace Disparities and Corporate Culture.” <em>Industrial Relations</em> (Forthcoming).</td>
<td>Surveys 30,000 employees from 14 companies to determine how disability is linked to employment outcomes such as wages, job security, training, and attitudes. Compares results to responses on corporate culture to determine whether and how disability outcomes are affected by those cultures.</td>
<td>Disabilities are found to be linked to negative employment outcomes such as lower pay. However, corporate cultures rated as fair towards all employees are especially beneficial to workers with disabilities.</td>
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<td>Social Security Advisory Board (October 2003). The Social Security Definition of Disability: Is it Consistent with a National Goal of Supporting Maximum Self Sufficiency?</td>
<td>This report looked at the background of the program and how it has changed, the growing difficulty of appropriately determining who can and cannot work, and the various attempts to build in work incentives. The report briefly catalogs some of the alternative approaches that might, in some combination, be incorporated into a revised program. Any such changes must be made carefully and with due regard for the importance of this program to the lives of America’s disabled citizens and to its impact on other elements of national income security. But the Board believes that the time has come to seriously address the definitional issue. We look for this report to focus attention on that issue, and we expect to do additional work in this area in the near future.</td>
<td>This report summarizes the history of the Social Security disability programs, examines the definition of disability, and suggests revising the programs.</td>
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<td>Silverstein, Robert, George Julnes, and Renee Nolan. “What Policymakers Need and Must Demand From Research Regarding The Employment Rate of Persons with Disabilities.” Behavioral Sciences and The Law 23 (2005): 399-448.</td>
<td>This article connects standard research methodology concepts with the complexities of evaluating disability policy to help stakeholders appreciate the issues involved in this debate. This appreciation can help policymakers (1) recognize unwarranted cause-and-effect conclusions based solely on existing national survey data and (2) demand better data and stronger research designs to complement the potential over-reliance on correlational studies using problematic survey data to estimate policy impacts.</td>
<td>The article concludes with a practical framework with a checklist for assessing the adequacy of research regarding the employment rate of persons with disabilities.</td>
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<td>Spieler, Emily A., Peter S. Barth, John F. Burton, Jay Himmelstein, Linda Rudolph. “Recommendations To Guide Revision of the Guides To The Evaluation of Permanent Impairment.” Journal of the American Medical Association 283, No. 4 (2008). 519-23.</td>
<td>Outlines recommended strategies for repairing commonly cited deficiencies in the AMA’s influential <em>Guides to the Evaluation of Permanent Impairment, Fourth Edition</em>. These criticisms focus on 2 areas: internal deficiencies, including the lack of a comprehensive, valid, reliable, unbiased, and evidence-based system for rating impairments; and the way in which workers’ compensation systems use the ratings, resulting in inappropriate compensation.</td>
<td>Focuses on internal deficiencies and recommend that the <em>Guides</em> remain a tool for evaluation of permanent impairment, not disability. To maintain wide acceptance of the <em>Guides</em>, its authors need to improve the validity, internal consistency, and comprehensiveness of the ratings.</td>
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<td>Stapleton, David C., and Richard V. Burkhauser. <em>The Decline in Employment of People with Disabilities: A Policy Puzzle</em>. Ithaca, NY: Cornell University (2003).</td>
<td>The book reviews the various theories being hypothesized to explain the continuing decline of employment among workers with disabilities. It details five main theories that describe the reasoning behind this problem. One of the main conclusions of the book is that the increased burden and SSDI theories are the most likely to contribute to employment for workers with disabilities.</td>
<td>Explore the various explanations for the decline in employment among workers with disabilities.</td>
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<td>Stapleton, David C., R.V. Burkhauser, and A. Houtenville, <em>Has The Employment Rate of People with Disabilities Declined? Policy Brief</em>. Ithaca, NY: Cornell University, 2004.</td>
<td>This report uses the CPS and NHIS to summarize the arguments and evidence concerning reports of an unprecedented decline in the employment rate of working-age people with disabilities.</td>
<td>For policy purposes, it is important to recognize that the employment of working-age people with disabilities declined in the 1990s, regardless of why the decline occurred, because of its social consequences.</td>
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<td>Stapleton, David C., Bonnie L. O'Day, Gina A. Livermore, and Andrew J. Imperato. “Dismantling the Poverty Trap: Disability Policy for the Twenty-First Century.” <em>The Milbank Quarterly</em> 84, No. 2 (2006): 701-732.</td>
<td>Examines statistics that show high poverty levels among those with disabilities, along with public policies and benefits programs which, the authors argue, have thus far failed to decrease poverty or promote self-sufficiency among the disabled.</td>
<td>Finds that today’s disability policies, which remain rooted in paternalism, create a “poverty trap,” and suggests some principles to guide reforms and encourage debate.</td>
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<td>Stapleton, David C., David Wittenburg, and Elaine Maag. <em>A Difficult Cycle: The Effect of Labor Market Changes on the Employment and Program Participation of People with Disabilities</em>. Ithaca, NY: Cornell University, 2005.</td>
<td>This paper examines the dynamics behind the employment and program participation trends of workers with disabilities.</td>
<td>Finds strong evidence that labor market declines induce male workers with disabilities to exit employment and enter the disability programs, but only weak evidence that male workers with disabilities are more likely than those without disabilities to lose their jobs in a declining labor market.</td>
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<td>Stern, Steven. “Semiparametric Estimates of the Supply and Demand Effects of Disability on Labor Force Participation.” <em>Journal of Econometrics</em> 71, No. 1-2 (1996).</td>
<td>This paper examines the results of a 2003 change to the layout and instructions of the ACS, aimed at reducing confusion among respondents and thereby improving results.</td>
<td>Finds that it is not possible to discern which portion, if any, of the difference between 2002 and 2003 disability estimates can be attributed to actual change in the number or percentage of people with disabilities.</td>
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<td>Stern, Sharon and Matthew Brault. <em>Disability Data From the American Community Survey: A Brief Examination of the Effects of a Question Redesign in 2003</em>. Washington, DC: US Census Bureau, Housing and Household Economic Statistics Division, 2005.</td>
<td>This paper examines the results of a 2003 change to the layout and instructions of the ACS, aimed at reducing confusion among respondents and thereby improving results.</td>
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<td>Tanielian, Terri and Lisa H. Jaycox. <em>Invisible Wounds of War: Psychological and Cognitive Injuries, their Consequences, and Services to Assist Recovery.</em> Santa Monica, CA: The RAND Corp., 2008</td>
<td>RAND conducted a comprehensive study of the post-deployment health-related needs associated with these TBI and PTSD among OEF/OIF veterans, the health care system in place to meet those needs, gaps in the care system, and the costs associated with these conditions and with providing quality health care to all those in need. The study concluded that more effective treatments given to all returning soldiers would pay for itself within the first two years by improving productivity and reducing medical costs. RAND also believes this could help to retain a healthy military force in the future.</td>
<td>Many servicemen and women are returning from Iraq with mental disabilities such as TBI and PTSD.</td>
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<td>Thomas, Dale F., Frederick E. Menz, and David A. Rosenthal. “Employment Outcome Expectancies: Consensus among Consumers, Providers, and Funding Agents of Community Rehabilitation Programs.” <em>The Journal of Rehabilitation</em> 67 (2001).</td>
<td>This study was conducted to determine whether consensus between various stakeholders on identification of the most important employment outcome characteristics exists.</td>
<td>In order to build a solid foundation upon which to report the employment outcomes, an instrument is needed that assesses outcomes against standards relevant to employment services typically provided by CRPs and meaningful for people with disabilities, providers, and funders.</td>
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<td>Thornton, Patricia, I. Zietzer, S. Bruyère, T. Golden, and A. Houtenville, “What Works and Looking Ahead: A Comparative Study of UK and US Policies and Practices Facilitating Return to Work for People with Disabilities,” <em>US/UK Pathways To Work in the 21st Century: Seminar and Workshop,</em> (Washington, DC: May 1-2, 2003).</td>
<td>This paper aims to summarize the key points of interest presented by two independent research organizations in the US and the UK, which were commissioned to review the research on ‘what works’ in facilitating return to work for people with disabilities, and to consider current developments in the light of the evidence.</td>
<td>The programs and services provided by both the UK and US provide positive and negative lessons for both nations to improve.</td>
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<td>Tolin, Tom and Martin Patwell. “A Critique of Economic Analysis of the ADA.” <em>Disability Studies Quarterly</em> 23, No. 1 (Winter 2003): 130-142.</td>
<td>The purpose of this paper is to analyze the DeLeire and Acemoglu and Angrist papers and to reframe the discussion in a way that supports the authors’ proclaimed bias for the ADA.</td>
<td>Concludes that the ADA did not create significant amounts of involuntary unemployment for workers with disabilities during the 1990s. Observed decreases in employment for this group can be explained, instead, as voluntary exits from the labor force.</td>
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<td>Toossi, Mitra. “A Century of Change: The US Labor Force, 1950-2050.” <em>Monthly Labor Review</em> (May 2002): 15-28.</td>
<td>This article profiles and projects US labor force trends for a period of 100 years, from 1950 to 2050, on a decennial basis. Changes in both growth rates of the population and labor force participation rates have created a steadily growing labor force that, compared with 1950, is today older, more diversified, and increasingly made up of women. The same forces that have influenced the size and composition of the US labor force over the past 50 years are expected to shape the future of the workforce as well.</td>
<td>With slower growth, aging, and increasing diversity, the profile of the US labor force is undergoing a gradual, but significant, change.</td>
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<td>Toossi, Mitra. “Labor Force Projections to 2016: More Workers in their Golden Years.” <em>Monthly Labor Review</em> (Nov. 2007): 33-52.</td>
<td>Projects the US labor force to 2016, focusing primarily on demographic factors.</td>
<td>As the US population ages, the labor force will grow more slowly during the next decade; the older labor force is projected to grow more than 5 times faster than the overall labor force.</td>
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<td>Trupin, Laura, Douglas S. Sebesta, and Edward Yelin. “Transitions in Employment and Disability Among People Ages 51 To 61.” <em>Disability Statistics Report</em> 15. Washington, DC: US Department of Education, National Institute on Disability and Rehabilitation Research, 2000.</td>
<td>Uses data from the HRS to analyze transitions in disability and employment from 1992 to 1994, the first two waves of the HRS survey. Also estimates the incidence of disability from 1992 to 1994, and explores the effect that developing a disability has on maintaining employment.</td>
<td>Found that developing disability in late middle age is not rare, but that having a continuing disability is more common. The effects of disability on employment was strongest for new disabilities.</td>
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<td>US Government Accountability Office. <em>Workforce Investment Act: Labor Has Taken Several Actions To Facilitate Access to One-Stops for Persons with Disabilities, But these Efforts May Not Be Sufficient</em> (GAO-05-54). Washington, DC: 2004.</td>
<td>This report examines (1) what the Department of Labor (Labor), states, and the one-stops have done to facilitate comprehensive access to the WIA one-stop system; (2) the various relationships that the one-stops have established with disability related agencies to provide services to persons with disabilities; (3) what Labor has done to ensure that the one-stops are meeting the comprehensive access requirements, and the factors that have affected efforts to ensure compliance; and (4) what is known about the employment outcomes of persons with disabilities who use the one-stop system.</td>
<td>Recommends that Labor develop and implement a long-term plan for ensuring that the one-stops comply with the comprehensive access requirements.</td>
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<td>US Government Accountability Office. <em>VA Vocational Rehabilitation and Employment: Better Incentives, Workforce Planning, and Performance Reporting Could Improve Program</em> (GAO-09-34). Washington, DC: 2009.</td>
<td>This report attempts to determine (1) how the implementation of the Five-Track Employment Process has affected VR&amp;E’s focus on employment, (2) the extent to which VR&amp;E has taken steps to improve its capacity, and (3) how program outcomes are reported.</td>
<td>Recommends that VR&amp;E consider cost-effective options to align the program’s financial incentives with its employment mission as well as engage in a strategic workforce planning process that collects and uses relevant data.</td>
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<td>Weathers, Robert R. <em>A Guide to Disability Statistics from the American Community Survey</em>. Ithaca, NY: Cornell University, 2005.</td>
<td>This report aims to provide an easily accessible guide to the disability information available in the nationally representative survey, along with a set of estimates on persons with disabilities from the dataset.</td>
<td>While there are some limitations to the disability data collected in the ACS and further methodological research is required, the ACS disability data has been recognized as an improvement over prior Census Bureau surveys.</td>
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<td>Yelin, Edward H. and Laura Trupin. “Disability and The Characteristics of Employment.” <em>Monthly Labor Review</em> (May 2003): 20-31.</td>
<td>Analyzes the California Work and Health Survey and finds that persons with disabilities have lower employment rates and less secure kinds of employment than those without disabilities, but that once employed, the two groups do not differ fundamentally in the nature of their working conditions.</td>
<td>The disabled have lower employment rates and less secure employment than the nondisabled, but both groups share roughly the same working conditions.</td>
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