

**AN EXPLORATORY STUDY OF BARRIERS AND
INCENTIVES TO IMPROVING LABOR FORCE
PARTICIPATION AMONG PERSONS WITH
SIGNIFICANT DISABILITIES**

Final Report

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FOREWORD

The Office of Disability, Aging, and Long-Term Care Policy (ODALTCP) is a newly created office within the Office of the Assistant Secretary for Planning and Evaluation (ASPE) of the U.S. Department of Health and Human Services (DHHS). ASPE provides data and analysis to inform policy making in the DHHS, and ODALTCP has a mandate to expand **ASPE's** research agenda on persons with disabilities of all ages, focusing on health care services and long-term supports. ODALTCP supports a number of disability-related research projects including research on independent living, long-term supports, and health care services for people with disabilities.

In August 1994, ODALTCP contracted with Lewin-VHI to prepare a summary report on existing research on "Barriers and Incentives to Improving Labor Force Participation Among Persons with Significant Disabilities," in an effort to update policy experts in the DHHS and to guide our research agenda on supports needed by people with disabilities who wish to gain and maintain employment. The resulting report covers a broad and continually expanding literature on the employment of people with disabilities. It reviews the general research literature and addresses several topics of special interest to the Department. Each review concludes with recommendations for additional policy relevant research.

A New Paradigm

This report on the research on "Barriers and Incentives to Improving Labor Force Participation for People with Significant Disabilities" comes at a time of rapid change in how disability is considered in American society. Over the last several decades, there has been a steady trend toward inclusion and participation by people with disabilities in mainstream institutions. In 1990, a strong movement among people with disabilities and their advocates resulted in the Americans with Disabilities Act which supports the full participation of people with disabilities in society and mainstream social institutions, including educational institutions, community housing, and the competitive work force. Advocates in the disability movement refer to these changes as a significant "paradigm shift" in how people with disabilities view themselves and how society as a whole considers disability. The old paradigm viewed disability as a social problem and disabilities themselves as conditions to be cured. The new paradigm views people with disabilities as people with problems that can be solved if society provides sufficient support and access. In many instances, disabling conditions must be accepted as long-term and provision made for dealing with them so that individuals can lead full and participatory lives to the extent possible.

The new paradigm will surely lead to greater participation and independence for some people with disabilities. At the same time, the new paradigm may not reflect the situations and concerns of certain segments of the population of people with disabilities. Those who have chronic illnesses which steal strength and energy for performing work and those with functional limitations who because of lack of education or updated skills or downturns in the business cycle can be expected to have a difficult time gaining and maintaining employment. Research needs **to** continue to inform us about the conditions and needs of people with disabilities.

The chapters of this report reflect the "paradigm shift" with their emphasis on such supports as personal assistance services, assistive technology, and integrated programs designed to help enable people with significant disabilities to enter the competitive job market. It is clear that little research has addressed many of these issues, while a great deal of

research has focused on overall trends in labor force participation by people with disabilities, on trends in receipt of disability-related public benefits, and on patterns of work by those receiving benefits.

Future Research

Future research on work and disability faces several challenges. Although research on labor force participation by people with disabilities is a well-developed area with large-scale studies and major texts, research still suffers from lack of consistent definitions and detailed information about people's conditions and circumstances. Many studies, including many of the major national surveys, continue to rely on self-reported work limitation as a measure of disability in labor force studies. The work limitation question is an imprecise measure of disability and is mixed with the respondent's view of the labor market and his or her employability.

Traditional conceptual models of labor force participation need adjustment when the focus is on people with significant disabilities. The supports needed by those with severe disabilities should be built into models of individual choice. In addition, the amount of knowledge people with disabilities have about sources of support should be taken into account when trying to understand the factors associated with labor force participation.

Not only are conceptions of disability changing, but the population of disabled people is changing. For instance, there are many more disabled people who have no work experience. While in the past, research focused on disabled older workers and those who became disabled on the job, new research needs to focus on the increasing numbers of younger people who are disabled and who have never worked.

As encouraged in this report, research needs to give attention to the effects on disabled persons of major social policy reforms and reform proposals. Welfare reform research needs to recognize that a significant proportion of welfare recipients have disabilities. The far reaching changes in health care financing and delivery beg for research on the effects on people with disabilities of managed care systems in both the public and private sectors. ASPE is supporting a number of studies of managed care serving people with disabilities, but, as is also encouraged in this report, more research is needed on the effect of health insurance provisions as they relate to the employment of people with disabilities. ASPE has also developed and supported a major national survey of people with disabilities (National Health Interview Survey Disability Supplement) which will become a valuable resource for research on many topics related to disability.

This report pulls together many findings from the recent literature on work and disability. We hope it will contribute to the further development of policy-relevant research aimed at explicating and improving the lives of people with disabilities.

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CHAPTER ONE

INTRODUCTION AND SUMMARY

A. Introduction

Over the last several years, the Office of the Assistant Secretary for Planning and Evaluation (ASPE) in the U.S. Department of Health and Human Services (DHHS) has been pursuing a number of research efforts to better understand the participation of persons with significant disabilities in competitive employment. As part of this effort, **ASPE's** Office of Disability, Aging, and Long-Term Care Policy (ODALTCP) has contracted with Lewin-VHI to conduct an exploratory study of the barriers that impede and incentives that encourage the labor force participation of persons with significant disabilities. Of particular importance is how DHHS programs and policies can interact with other federal agency, state, and private sector activities to help or hinder employment. DHHS programs include the health care programs (Medicare and Medicaid), and the social service and aid programs including those of the Administration for Children, Youth and Families (ACYF), the Administration for Developmental Disabilities, the Administration on Aging, and the research and **service** programs of the Public Health Service. Until March 1995 the Social Security Administration (SSA) was **part** of DHHS. The programs of DHHS and SSA remain strongly linked. The objective of the project is to inform and provide direction to **ODALTCP's** future research agenda for policy-relevant studies on issues under the purview of these programs.

Employment opportunities for persons with significant disabilities are an important focus for public policies related to social service, income maintenance, and health insurance. Many people with disabilities want to work. Their participation in the labor force contributes to their independence and integration into society, provides tax revenues, and reduces income support program outlays. At the same time, many persons with disabilities are not able to work or to find work. Others may choose to pursue non-market activities rather than engage in work.

People with significant disabilities often need support of some sort to engage in work, including health care, vocational rehabilitation, personal assistance services, assistive devices, and employers accommodating their work environment **and** duties. How best to provide this support is an ongoing concern for policy makers.

This report contains the findings from five separate exploratory studies on issues related to the labor force participation of persons with disabilities. The report draws primarily from published studies in order to identify areas of research with conflicting claims and areas in which little or no research has been conducted. Based on the review of this body of research, we make recommendations for needed additional research in the specific areas studied. The studies included in this report examine:

- various aspects of the competitive labor market for persons with disabilities, including factors affecting the labor supply of and demand for disabled workers;
- the use of personal assistance services and assistive devices by disabled workers;
- the impact of welfare reform strategies on persons with disabilities; and
- selected programs that offer comprehensive services to help persons with significant disabilities participate in competitive employment.

In this summary report, we first describe the conceptual framework used to approach each of these studies. We then provide an overview of the report and summarize the findings from each of the studies. We conclude this report with a discussion of the need for additional research to support the analysis and formulation of government policies that may have an impact on the employment of persons with disabilities.

B. Conceptual Framework

In studying the factors that promote and discourage labor force participation among persons with disabilities, it is useful to define a framework in which these factors may be organized, analyzed, and evaluated as to their ability to be addressed by public policy. Below, we describe the conceptual framework used in this report, discuss the policy options implied by this framework, and briefly note some of the issues associated with defining “disability” in the study of the labor force participation of persons with disabilities.

1. An Economic Perspective

We approach this project from an economic perspective. That perspective emphasizes the role of individuals making choices between various alternatives as key to understanding behaviors such as labor force participation. A well developed theory of the labor market exists in the economics literature, and it is this theory that forms the conceptual framework and

organizing scheme we use to present information on various factors that act as either barriers to or incentives for work among persons with disabilities.

The basic economic theory of labor markets posits that the amount of labor individuals are willing to supply will depend on their preferences, and an hours/earnings tradeoff. Individuals must choose how to allocate their limited time between (market) work activities and all other activities. Non-work activities are euphemistically called 'leisure', but include all forms of unpaid work and self-care. Market work is necessary to obtain earnings, which are **used** to purchase goods and services. Therefore, the allocation of hours to market work and other activities represents a choice based on the individual's preferences and the tradeoff **between** the consumption of goods and services and the consumption of leisure.

Economic theory also posits that the amount of labor firms demand will be dependent upon the demand for the firm's product, the productivity of labor (and other inputs), the **wage** rate and other costs firms must incur to hire labor, and the costs associated with other inputs that are substitutes or complements to labor. The textbook profit-maximizing firm will demand that amount of labor at which the value of the additional output produced by the last worker hired is just equal to the cost of hiring that worker.

This economic view of how individuals decide how much labor to supply and how firms decide how much labor to demand is simple, but it forms a basic framework in which predictions may be made and hypotheses may be tested. This basic framework may also be modified and enhanced with details specific to the issues under study; in this case, to the labor market for persons with disabilities.

For persons with disabilities, the tradeoff between work and leisure is likely to be influenced by the availability of other sources of income in the absence of work (disability benefits or spousal earnings, for example), availability of health insurance, which is often contingent on employment or public program participation, and the wage rate. Wage rates for persons with disabilities may be affected by the disability itself, as impairment may reduce productivity, influence employer perceptions of productivity, or be a source of discrimination by employers.

Persons with disabilities may also be required to incur additional expenses in order to participate in the labor market, such as the costs of rehabilitation, special transportation, equipment, or personal assistance services. All else equal, these additional work-related expenses will make labor force participation less attractive or even render the net gains to working negative, unless paid by a third party.

In addition, the labor/leisure tradeoff and decision to work for persons with disabilities may be affected if disability reduces the number of hours available for work and leisure. Disability has been characterized as a condition that “steals time” (Oi, 1991). Persons with disabilities may require more time for personal care or medical care activities and, thus, have less time available for work. Assistance that helps reduce the time required for non-work activities, such as housework, may increase the time available for work and, hence, increase labor force participation.

The labor supply of persons with disabilities is in part determined by individual preferences, which are themselves likely to be influenced in a variety of ways by the presence of a physical or mental impairment. For example, impairments often steal time by reducing life expectancy. Other things constant, it seems likely that the shorter an individual’s life expectancy, the less the individual will want to work today.’

The demand for workers with disabilities by firms will depend on ‘the productivity of these workers and the costs the firm must incur to hire them. If disabled workers require special accommodations in order to work, the costs of these accommodations will be taken into account when deciding whether or not to hire workers with disabilities. In theory, if firms do not believe that a worker’s compensation plus the cost of their investment in accommodations or their support for developing the worker’s capabilities will be entirely offset by the worker’s productivity, accommodation will not **occur** and workers with disabilities will not be hired. Economic theory predicts that, in a competitive labor market, if the government imposes labor regulations or a benefit mandate on employers, workers will bear the burden through lower wages and employment in the long-run. Regulations, including the Americans with Disabilities

¹ Although we have characterized the effect of reduced life expectancy on labor supply as an effect on preferences, from a lifetime perspective, reduced life expectancy can be viewed as a tightening of a lifetime time constraint. From this perspective, it seems likely that most people would spread their loss in expected lifetime across all activities, including work.

Act (ADA), may reduce the ability of employers to shift costs onto workers, but if the cost of a regulation to employers is high, enforcement of the regulation is likely to be difficult.

Institutional policies and practices associated with the labor market will also affect the demand for workers with disabilities. A forty-hour work week, wage scales that do not adjust for productivity, and other occupational rigidities may reduce the likelihood that persons with disabilities are hired. Some regulations may have a positive impact on employment and wages by reducing or eliminating such rigidities.

Changes in the macroeconomy (business cycles and economic restructuring) affect the demand for disabled workers just as they do the demand for other workers. Workers with disabilities, however, may find it more difficult to adjust to macroeconomic change than those without disabilities. Their disabilities and, in many cases, low skills may make it more difficult to find a new job, especially if available jobs require skills that they don't already have. Unemployment insurance and employment and training programs that have been designed for workers without disabilities may be inadequate for the needs of those with disabilities.

In addition to the principal players in the labor market (individuals and firms), third parties have a direct or indirect interest in the lives of persons with disabilities and the behavior of the third parties may encourage or discourage employment of those with disabilities. There is a broad social consensus that persons with disabilities deserve, or even have a right, to assistance from others. Such assistance comes from many sources including other family members, charitable organizations, and the various levels of government. The amount of assistance is often conditioned on the perceived financial need of the disabled person. Employment earnings are likely to reduce perceived need, thereby reducing assistance -- an "implicit tax" on earnings that may discourage work. At the same time, however, those who provide assistance have an interest in encouraging employment in order to reduce their own financial obligation. Thus, availability of public and private disability insurance benefits and welfare payments to a disabled individual may discourage the individual from working, but at the same time those who pay the benefits have a financial interest in encouraging work.

Other examples of interested third parties are state and local governments, which may encourage those with disabilities to obtain federal disability and health benefits to reduce state and local expenditures for income support and health care, and health care providers, who

may encourage their patients with disabilities to apply for federal income support and health benefits. These actions may discourage employment because eligibility for federal benefits is conditioned on financial need.

2. Defining Disability

In studying the barriers and incentives to labor force participation of persons with disabilities, it is necessary to define the concept of “disability” being used. Disability is a multi-faceted concept that represents the relationship between an individual and his or her environment. It typically refers to a limitation in functioning that stems from the presence of a physical or mental impairment. The definition becomes complex, however, because an individual who is limited in his or her ability to function in one environment may not be limited when components of that environment are modified or when functioning in alternative environments. In addition, disability status may be dependent on the skills or abilities an individual had prior to the onset of impairment and how the impairment has reduced or destroyed those abilities. For example, a concert pianist who loses her hand might be considered to have a work disability, whereas a singer who loses his hand may not be considered work disabled. Finally, a disability may itself constitute a barrier to the acquisition of skills.

For the most part, this report focuses on the ability of impaired individuals to adapt to the competitive labor market environment, taking that environment as given. Little consideration is given to a symmetric issue about which much less is known, namely the ability of the economy to provide employment opportunities to those with impairments.

The definition of disability used in the Americans with Disabilities Act serves as a useful starting point for defining disability:

“Disability means with respect to an individual (1) a physical or mental impairment that substantially limits one or more of the major **life** activities of such individual, (2) a record of such an impairment, or (3) being regarded as having such an impairment.”

“Major life activities means functions such as caring for oneself, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning, and working” (Americans with Disabilities Act, 1990).

Because the focus of this report is the labor force participation of persons with disabilities, disability is viewed from the perspective of an individual's capacity to engage in work. This perspective in no way simplifies the concept of disability, nor its measurement in national **surveys** used to analyze work disability issues. In this report, we review studies of disability that use a variety of sources of information and data on disability. We therefore do not propose a standard definition of 'disability', but rather, take care to describe the definition of disability used in each study whenever possible.

The major national surveys frequently used to study disability and labor force participation are the National Health Interview Survey (NHIS), the Current Population Survey (CPS), and the Survey of Income and Program Participation (SIPP). -The **NHIS** uses activity limitations to define disability (inability to engage in major activity, limitation in amount or kind of major activity, and limitation in non-major activities). The CPS also uses self-reported activity limitation as an indicator of disability, but asks respondents if they are limited specifically in their ability to work, rather than a more general question concerning limitations in any major activities. The **NHIS** also uses functional limitations (need for personal **assistance** in activities of **daily** living and instrumental activities of daily living), and/or the presence of chronic health conditions as a basis for defining and measuring disability, as does the **SIPP**. A description of these and other **surveys** that may be used to study disability issues is presented in Exhibit I at the end of this summary report.

C. Overview and Summary

In this section we summarize the findings from the studies conducted for this project:

- the literature review on various aspects of the competitive labor market for persons with disabilities;
- the use of personal assistance services and assistive devices by disabled workers;
- the impact of welfare reform strategies on persons with disabilities; and
- selected programs that offer comprehensive services to help persons with significant disabilities participate in competitive employment.

We **begin** each subsection with a description of how the study was conducted, and then state the major findings. Citations refer to studies that form the basis for the findings. An

expanded discussion of each finding appears in the full report.

1. Literature Review

If the employment of persons with disabilities is a desirable social objective, then a better understanding of the factors affecting the labor market for disabled workers is a necessary starting point for the development of public policies to promote their employment. Therefore, we began our study with a review of the literature that describes the extent of labor force participation by persons with disabilities and examines the major factors believed to affect the labor supply of persons with disabilities and the demand for disabled workers by firms. More specifically, we review: the historical trends in labor force participation of persons with disabilities; the characteristics of workers and working-age persons with disabilities; the earnings of workers with disabilities and evidence of wage discrimination; the impact of income support programs on labor supply: the availability of health insurance and incentives associated with health insurance contingent on program participation; the effect of business cycles and industrial restructuring on the employment of persons with disabilities; and workplace accommodations provided by employers. The principal findings of the literature review include:

Trends in the Labor Force Participation and Earnings of Persons with Disabilities

- The labor force participation of men, both with and without disabilities has been steadily declining since the 1970s; the largest decline has been among disabled men age **55-64** (Yelin, 1993).
- The labor force participation of women, both with and without disabilities has been increasing dramatically for those without disabilities and steadily for those with disabilities since the 1970s. The greatest increases were experienced by women age **18-44** (Yelin and Katz, 1994a).
- The percent of disabled workers who are employed full-time has been declining and rates of part-time employment have been increasing. In contrast, full-time employment among workers without disabilities has remained relatively constant, while part-time employment has increased, although not by as much as for workers with disabilities (Yelin and Katz, **1994b**).
- In general, there was a substantial decline in the earnings of workers with disabilities relative to those of workers without disabilities during the 1980s (McNeil, 1989). There are many possible explanations of this trend, but we have not found any study that attempts to determine the relative importance of each one.

Characteristics of Disabled Workers

- Workers with severe disabilities are more likely to be older, female and black or Hispanic, and to have less education than workers without severe disabilities (NIDRR, 1992).
- Workers with severe disabilities experience higher unemployment and lower earnings than workers without severe disabilities and are more likely to be employed in service or craft occupations or to be self-employed (NIDRR, 1992) (**Mathematica** Policy Research, 1990).
- Older workers who become disabled are substantially less likely to return to work, less likely to recover from disability, and equally likely to fall into poverty as younger individuals following the onset of disability (Burkhauser and Daly, **1994b**).
- A recent study examined the employment changes among workers between the ages of 51 and 61 after the onset of disability. Subsequent to the onset of a disability, about one-fourth of workers change employers, about one-fourth exit from the labor **force**, and approximately half remain with their original employer. Within this group, labor force withdrawals were positively associated with age and negatively associated with education (Daly and Bound, 1994).

International Comparisons

- We find little population-based cross-national research on the labor force **participation** rates of persons with disabilities. Most cross-national comparisons tie the definition of disability to receipt of disability transfers. An exception is a comparison of labor force participation in the U.S. and Germany using national sample data. The study shows that the overall participation rates are approximately the same in the two countries, but that working age men with disabilities in Germany are more likely to be working full-time and receive higher earnings than their U.S. counterparts (Daly, 1994).
- The U.S. spends less in income support per person with a disability than Germany, Sweden, and the Netherlands. Within age groups, the U.S. had the lowest rates **for** those aged 45 to 64, but the German rate was by far the lowest for those aged 15 to 44: just five per thousand compared to 23 per thousand in the U.S. The study attributes the low German rate for young workers to both the rehabilitation focus of **German** policy and the relatively low income replacement rate for younger transfer recipients (**Aarts and DeJong**, 1994).
- Other industrialized countries, particularly those of western Europe, have a variety of incentives and supports to aid the labor force participation of workers with disabilities. Among the **types** of programs supported are disability allowances provided regardless of employment status, hiring quotas, vocational rehabilitation, constant attendance allowances, wage subsidies, job placement services, sheltered employment, payment for work-related assistive technology, and universal health insurance (**Aarts and DeJong**, 1994) (Zeitler, 1994).

Income Support Programs and Their Effect on Labor Supply

- Four of the major programs (Supplemental Security Income (SSI), Veterans Pensions, Aid to Families with Dependent Children (AFDC), and General Assistance (GA)) are 'means-tested' -- eligibility requires that the individual's or household's income and other resources fall below specified limits. Although special provisions of these programs have been designed to encourage work, in general any earnings are implicitly "taxed" by a reduction in benefits.
- The other four major programs (Social Security Disability Insurance (DI), Workers Compensation (WC), Veterans Compensation (VC), and Private Disability Insurance (PDI)) are designed to provide insurance benefits to replace earnings for workers (including members of the armed forces) who suffer significant reductions in earnings due to a disability. DI and PDI provide benefits regardless of the cause of disability, and WC and VC provide benefits for disabilities caused by a work-related injury. With the exception of VC and, in some cases, WC, all benefits are lost if the recipient returns to work at a sufficiently high level of earnings.
- Some individuals qualify for benefits from multiple programs, and the work disincentive from the combined programs may be substantially greater than that from just one of them; it is the combined incentive that is relevant. An important example is that the work disincentive associated with DI is very low for a worker with high earnings because DI benefits replace a low share of his or her earnings, but combined benefits from DI and PDI may replace as much as two-thirds of earnings.
- With some exceptions, individuals who qualify for income payments under these programs automatically qualify for medical benefits, and the value of these benefits is likely to be considerable for a person with disabilities -- perhaps larger than the income benefit itself.
- The large, long-term decline in the labor force participation rates of men between the ages of 45 and 64 is mirrored by the increase in the percentage of men in this age group who are DI beneficiaries (Parsons, 1980). A variety of evidence indicates that the increases in the generosity of DI benefits relative to earnings does account for a significant share of the decline in older male labor force participation rates, but that much of this decline is due to other factors (Haveman and Wolfe, 1984) (Haveman, Wolfe, and Warlick, 1987) (Bound, 1989) (Kreider, 1994). The share due to DI benefits has not been precisely estimated. This literature does not include significant analyses of the effects on women or younger men. The role of private disability insurance, alone and in combination with DI, has also been largely ignored.
- The substantial literature on Worker's compensation finds conclusive evidence of the effect of WC benefits on work effort (Butler and Worall, 1985) (Worall et al., 1988) (Johnson and Ondrich, 1990) (Krueger, 1990) (Meyer et al., 1991) (Currington, 1993). The strength of the estimated effect depends on the nature of the program and the methodology used to estimate it. We have not found a study that carefully reviews all of the WC literature and examines the relationships between findings, the nature of the program, and methodology. The findings of the studies reviewed for this report suggest that the substantial increases in generosity of WC that occurred following federal

legislation in 1972 may have contributed significantly to the decline in labor force participation of older men, but to our knowledge, no one has attempted to estimate the magnitude of this effect.

Health Insurance Coverage and Incentives to Work

- Working-age persons with disabilities are less likely to have private insurance and are **more likely** to receive public health insurance through Medicare and Medicaid than the overall population (**LaPlante, 1993**).
- Working-age persons with disabilities use substantially more health care **services** than persons without disabilities (Lewin-VHI, **1995a**).
- Average health care expenditures for those with disabilities are more than seven times the average of those for persons without disabilities (Lewin-VHI, **1995a**).
- There are compelling reasons to believe that high health care costs and access to health insurance discourage labor force participation and encourage participation in **SSI** and DI, but we have found no research that examines the effect of these factors on labor force participation or program participation of persons with disabilities. Research on the work disincentives associated with high health care costs and access to public and private insurance has focused on how the 'availability of Medicaid affects the **labor** supply and AFDC program participation of young mothers. Although evidence of **work** disincentives is mixed, the more recent and methodologically superior AFDC studies find statistically significant and substantial effects (Blank, 1988) (**Winkler, 1990**) (**Moffit and Wolfe, 1992**) (**Yelowitz, 1994**).

The Effect of Impairment on Earnings

- Numerous studies have demonstrated the impact of poor health on earnings, both through its impact on hours of work and on wages (Luft, 1975) (**Bartel and Taubman, 1979**) (Chirikos and Nestel, 1981). Fewer studies, however, have focused specifically on the experience of persons with severe disabilities or on the differences across individuals with different types of impairments.
- A recent study that focuses on disability found that wage offers to individuals with specific **impairments** range from 74 percent to 101 percent of those to individuals without impairments, depending on impairment and holding other important characteristics of the worker constant. This study also shows that wage losses from specific impairments vary by gender: limitations to mobility and strength reduce male wages more, and limitations to sensory capacities and appearance reduce female wages more. The methodology used to develop these estimates is complex and uses strong assumptions; hence these results should be viewed with some caution (Baldwin, Zeager, and Flacco, 1994).
- A study that compares the earnings of persons before and after the onset of disability indicates that women and persons with less than a high school education experience the largest declines in average **earnings following** the onset of disability (**Burkhauser and Daly, 1994b**).

Business Cycles and Industrial Restructuring

- There is evidence that cyclical changes in the economy affect the labor force participation of persons with disabilities to a greater extent than that of persons without disabilities (Yelin and Katz, 1994a). Applications, and to a lesser extent, awards, for DI and SSI benefits are also sensitive to the business cycle (Lewin-VHI, 1995b).
- Economic restructuring reduces good job opportunities for disabled workers with low skills, but may increase opportunities for those with technical expertise. To date, however, there are no estimates of the magnitude of the effects that economic restructuring has on workers with disabilities.

Wage Discrimination Against Persons with Disabilities

- Recent wage discrimination studies find that male and female workers with disabilities receive wage offers that are, on average, 86 and 90 percent, respectively, of those made to workers of the same gender without disabilities and with comparable levels of measured productivity. These studies differ from studies of the effect of impairment on earnings because they attempt to control for productivity. It could be, however, that a substantial portion of the wage differences reported is due to unmeasured differences in productivity (Baldwin and Johnson, 1992a, 1992b).

Workplace Accommodations by Employers

- Only two national data sets have collected information on work accommodation. The 1978 Survey of Disability and Work and the 1991 Health and Retirement Survey. These surveys show that between one-fourth and one-third of workers who become impaired are accommodated following the onset of their conditions (Burkhauser, Butler, and Kim, 1994) (Daly and Bound, 1994).
- The Americans with Disabilities Act (ADA) may be limited in its ability to increase the prevalence of accommodation for economic reasons. Costs of accommodation would be expected to rise and the ability of employers to shift those costs onto workers will be reduced under the ADA (Chirikos, 1991). There is, however, no empirical research currently available to support this theory.
- Work accommodation has been shown to increase the length of time a worker will remain at his job following the onset of a limitation (Burkhauser, Butler, and Kim, 1994).
- **Among** persons who **continue to work** following the onset of disability, most (66 percent) remain with their current employer. Those who stay at the same job are more likely to be accommodated than those who change employers; however, those who change jobs are significantly more likely to experience a reduction in job demands (Daly and Bound, 1994).

2. Personal Assistance Services and Assistive Technologies

We examined the literature on the use of personal assistance services and assistive devices, respectively, and **evidence** of their potential impact on labor force participation of persons with disabilities. Information on the types, costs, **mode** of financing, and place of use (**home** or workplace) is presented in order to **identify** use-related issues that affect the propensity of individuals with disabilities to work or that influence the productivity of workers with disabilities. The most important findings are:

Use of PAS by Workers

- In our review of existing research, **we** found that very little is known about **the** use of personal assistance services by workers with disabilities, and **even less** is known for **those** with **severe** disabilities. We cannot **determine** the **prevalence** of the use of PAS in the work place or if the provision of PAS at home enables people to join the work force. We have difficulty assessing how many people are using **personal** assistance services, even on a national level.
- The **research** to date has **not** adequately addressed the effectiveness of potential public policy changes. The **research we** found had been conducted or commissioned by a small number of research organizations that also have an advocacy orientation. Through no fault of the researchers, these **analyses** are hampered by insufficient sample sizes, unrepresentative samples, inadequate measures of disability, and limited detail on personal assistance services required and received.
- The information available suggests that a relatively small proportion (less than one million) of the working-age population needs PAS. Data from the **1990/1991 Survey of Income and Program Participation (SIPP)** revealed that 2.6 percent of the working age **population** or 3.7 million people (between 21 and 64) needed **personal** assistance with at least one activity of daily living (**ADLs**) or instrumental activity of daily living (**IADLs**) (McNeil, 1993). **Of** these people, 20.6 percent, or 763,000, **were employed**. Analyses of data from the 1987 National Medical Expenditure Survey (NMES) conducted by **Lewin-VHI** revealed that 1.3 percent of the population under 65 needed assistance or supervision with one or more of their **ADLs** (**see** Appendix 1 for a breakdown of PAS utilization in the general population).

Access to PAS Among Workers

- For workers who do receive formally provided personal assistance services, funding is not likely to be provided by public sources (Litvak, **1994**). Most publicly funded programs that provide PAS exclude people who could be **employed**, for several reasons. First, many public PAS programs **have** strict means-testing that acts as a disincentive to work. Working may mean that the person with a disability would have to purchase services on their own (Nosek, 1990). Second, some PAS programs, **such as** those funded by the **Older Americans Act**, require that the PAS recipient be elderly.

This may partially explain why the PAS population tends to be concentrated more among the elderly (Litvak, 1991). Elderly PAS users are probably much more likely to be retired and not working. Third, many programs require strict limitations in activities of daily living (**ADLs**) and instrumental activities of daily living (**IADLs**) or that the person be at risk for institutionalization, so only those with very severe disabilities are eligible. Such persons are the least likely to be employed (Louis Harris & Associates, 1986, 1994; McNeil, 1993; World Institute on Disability and Rutgers University Bureau of Economic Research, 1990).

- Public programs that do minimize work disincentives allow: (1) recipients to employ their own assistants, (2) encourage people to obtain management training through Independent Living Centers, (3) allow for **24-hour-a-day** services, and (4) have no income limit or have an income, asset and allowable deduction limit generous enough to encourage individuals to work.
- Massachusetts and Pennsylvania have programs that provide PAS which attempt to eliminate work disincentives. Massachusetts allows for a Medicaid buy-in, that is individuals with income above the financial eligibility criteria can purchase Medicaid coverage on a sliding fee scale. Pennsylvania, which uses Social Services Block Grant Funds to support PAS, does not impose an income or resource eligibility criteria (poverty level enrollees pay no fee and others pay on a sliding scale).
- We know very little about the extent to which private employers compensate for this lack of publicly funded assistance by providing assistance themselves. Two studies suggest that a substantial number of companies make some kind of accommodation for people with disabilities (Berkeley Planning & Associates, 1981; Louis Harris & Associates, 1987). However, we do not have information on what types of personal assistance were being provided, who is providing this assistance, who pays for it, and what role it plays in allowing the person to enter and remain in the work force.
- The recipient's ability to pick and choose which services will be provided may determine how successful the services are in assisting **the** person to work. Persons with disabilities pay for much of their assistance themselves or receive specified services through public programs which are often means-tested. Although cash benefits or vouchers provide ultimate consumer control (a major theme among groups within the disability community) very few public programs offer participants the opportunity to receive cash benefits (Litvak, **1991a**). Several European countries provide cash benefits that give workers with disabilities greater discretion for the use of PAS to assist in their employment. Issues regarding accountability for and efficient use of public funds are often raised as reasons to limit consumer control.

*Use of **Assistive** Technology by **Workers***

- The financing of AT for workers with disabilities is fragmented -- there is no central source of public or private funds for AT for workers with disabilities. The most important source of funding is private, out-of-pocket expenditures made by the users of AT and their families. Unfortunately, many potential users of AT and their families lack the resources needed to purchase AT. Public funding is divided among numerous federal and state programs, each with its own potential clientele, types of AT funded,

and restrictions on the use of AT funding. The federal government has also passed a considerable amount of legislation, including modifications to the tax code, **that** encourage or even mandate the funding of some AT by third parties.

- There is no “typical” AT user -- AT is often commercially available products used by workers with and without significant disabilities and impairments. AT can help workers with numerous and/or severe physical impairments function on and off the job, but AT is less successful in helping workers with mental impairments cope with their job requirements. Finally, AT is being designed that provide workers with disabilities with “**access**” in the workplace, rather than “adapting” the workplace to meet the particular needs of these workers. (**DeWitte, 1991**), (**Ward, 1992**), (**NCD, 1993**), (**Tan and Horowitz, 1993**), (**Beattie, 1991**), (**Scaddon, 1991**), (**Vanderheiden, 1991 a**), (**Hauger, 1991a**), (**Kauppi and Dtubak, 1992**), (**Phillips and Zhao, 1993**), (**Mann and Svosai, 1994**), (**NIDRR, 1992**), (**Horstmann, Levine, and Kett, 1990**), and (**Vagnoni and Horvath, 1992**).
- Careful selection of appropriate AT and training in its use is essential -- for AT to be most useful, there must be careful communication between workers with **disabilities**, their employers, and AT professionals to define the requirements of each job; **the** abilities and limitations of each worker, and appropriate AT and related **services** allowing workers with disabilities to meet their job requirements. To insure **success**, workers with disabilities need training in the use of AT, and employers and **AT** professionals need to provide continued technical assistance and to conduct periodic reassessments of the needs of workers with disabilities. (**Phillips, 1989**), (**Steinfeld and Angelo, 1992**), (**Kimmel, Ourand, and Wheatley, 1992**), (**Lysaght and Hurlburt, 1992**), (**ABLEDATA, 1992**), (**The President’s Committee on Employment of Persons with Disabilities, 1994**), and (**NARIC, 1993a**).
- There are many unmet needs and other barriers limiting the use of AT -- potential users of AT on the job often cannot afford to buy these items themselves, and other sources of funding are often limited. Many workers with disabilities are also unaware of products that now exist that can assist them on the job. Many users of AT are not trained in the use of their AT, while others feel that using some AT may isolate them from their coworkers and other members of society. (**Enders, 1990**), (**NCD, 1993**), (**Phillips, 1989**), (**Ward, 1992**), (**Laplante, Hendershot, and Moss, 1992**), (**Weaver, 1991**), (**Dean and Dolan, 1993**), (**GAO, 1993**), (**Horstmann, Levine, and Kett, 1990**), (**Vanderheiden, 1991 a and 1991 b**).

3. Impact of Welfare Reform

The Aid to Families with Dependent Children (AFDC) program is a means-tested income support program that provides cash benefits to needy children deprived of parental support because a parent is absent from the home, incapacitated, deceased, or unemployed. Support may also be provided to others in the household, and is usually provided for the caretaker of such children. AFDC recipients are automatically eligible for Medicaid insurance coverage. Each state determines the eligibility requirements (within federal guidelines) and

benefit levels. The program is financed through a combination of state and federal funds, with federal funds covering from 80 to 80 percent of benefit costs and 50 percent of the administrative costs associated with the program (Committee on Ways and Means, 1994).

The AFDC program has been the target of many proposed welfare reform strategies designed to promote labor force participation of recipients and decrease AFDC caseloads. In 1988, the passage of the Family Support Act introduced many of these reforms. The Act established the Job Opportunity and Basic Skills (JOBS) program which is to provide education, training, and job placement for AFDC recipients. The Family Support Act also established "transitional Medicaid benefits" under which Medicaid coverage may be extended for twelve months to families who leave the AFDC rolls due to increased earnings.

Welfare reform strategies are again being debated and proposed at both the federal and state levels. President Clinton's proposed Work and Responsibility Act limits the receipt of AFDC to two years for most recipients, increases the percentage of recipients who must participate in the JOBS program, and restructures benefits to increase work incentives. Many states are currently conducting welfare demonstrations that incorporate one or more of these proposed reforms. Proposals that would presumably make it easier for states to implement reforms without federal approval are also being debated in Congress.

We investigated the impact of welfare reform strategies designed to encourage labor force participation of AFDC recipients with disabilities and recipients with disabled children. This is an important issue given the finding that approximately one in five women aged 15 to 45 on AFDC have some type of impairment, and approximately one in eight have a child with a disability (Adler, 1993). We reviewed the literature on labor force participation of AFDC recipients, the prevalence of disability in the AFDC population, and on the relationship between work incentives, health status, and labor force participation of AFDC recipients. The key findings of this review include:

Findings from General Studies of AFDC

- The findings from studies of the labor supply effects and work incentives associated with the AFDC program indicate: the program does have a significant negative impact on the labor supply of recipients (a reduction in hours worked from 10 to 50 percent); benefit levels negatively affect the probability of exiting AFDC; and changes in the benefit reduction rate for additional earnings do not have any net impact on the labor

supply of female household heads -- **the increased work effort Of existing recipients is offset by the decreased effort Of new recipients drawn to the rolls by the change in the benefit reduction rate** (Moff it, 1992).

- Studies of the duration of time spent on AFDC estimate that about 75 percent of new **recipients would be affected by a two-year time limit on benefit receipt; that is, they would remain on AFDC for more than two years in the absence of an imposed limit** (Ellwood, 1988). Those most likely to exit AFDC **are** those **with** higher wages, more education, and those with **fewer** children (Moff it, 1992).
- Studies of the impact of training programs on the earnings of AFDC recipients show that such programs have a positive effect on earnings and that **the costs** associated with these programs are offset by reduced AFDC payments **after two to five years**. These studies also show, however, that the earnings gains **do not typically lift families out of poverty and that training programs are least successful** in raising the earnings, of long-term AFDC recipients (Gueron and Pauly, 1991).

Findings with Respect to Recipients with Disabilities

- **Studies** of the prevalence of disability in **the** adult AFDC population show that 11 percent **have** a disability that is work limiting, and 19 percent have a functional impairment. The prevalence of disability among female AFDC recipients is about **twice** that of women in the general population (Adler, 1993) (Wolfe and Hill, 1993).
- 'The findings of a study of the impact of reform strategies on AFDC recipients with health impairments indicate that the labor force participation of recipients with impairments is much less sensitive to changes **in benefit levels and wage subsidies** than that of healthy AFDC recipients. This study **also showed that the provision of health insurance independent of AFDC participation would have a substantial positive impact on the labor force participation of both healthy and impaired recipients** (Wolfe and Hill, 1995).
- **A few studies have shown that recipients With disabilities do remain on the AFDC rolls longer than recipients without disabilities;** however, the Statistical **significance** of these findings has not been adequately demonstrated (Plotnick, 1983) (**Shea**, 1992) (Adler, 1993).
- **A study that examines the likelihood of AFDC recipients with disabilities to work, to leave the rolls, and to leave the rolls with earnings found that those with disabilities are not significantly less likely to leave the rolls, but are Significantly less likely to leave the rolls with earnings. This study also estimates that 30 to 40 percent of recipients with functional limitations do work at some time during the first year on AFDC** (Acs and Loprest, 1994).
- Several studies **demonstrate** that recipients with disabilities may encounter difficulties participating in work or training programs. A recent survey of JOBS enrollees **conducted at seven sites found that nearly one in five enrollees believed they were unable to engage in education or training activities because of a health or emotional problem** (Office of the Inspector General, 1992) (**Manpower Demonstration Research**

Corporation, 1994).

· *Findings with Respect to AFDC Children with Disabilities*

- The prevalence of disability among children in families on AFDC is 5.4 percent compared to 3.7 percent in the general population (**Mathematica** Policy Research, 1990). Other studies have shown that 7.5 percent of AFDC families have a child with a disability (Acs and **Loprest**, 1994) and that female recipients with disabilities are about twice as likely to have disabled children as female recipients without disabilities (22.6 percent versus 10.4 percent) (Adler, 1993).
- The evidence of the effect of a disabled child on maternal labor supply, and labor supply of AFDC mothers in particular, is mixed. Studies including all mothers or all single mothers have generally found a negative impact of a child's disability on maternal labor supply. However, a few studies have either found no impact or, in a few cases, a positive effect on maternal labor supply (Salkever, 1982) (Mauldon, 1992) (Wolfe and Hill, 1993) (Acs and **Loprest**, 1994).

We also interviewed AFDC administrators in eight states to obtain information about how their programs and policies provide work incentives or disincentives for recipients with disabilities, a subject about which little is currently known. The states we selected were chosen based on the nature of their recent welfare reforms: Colorado, Florida, South Dakota, and Vermont limit the duration of benefit receipt; Iowa, Oregon, and Utah require recipients to participate in employment or training activities in order to receive benefits, and impose immediate sanctions for non-compliance; New York requires those AFDC applicants who may be eligible for Supplemental Security Income (SSI) to apply for SSI in order to receive benefits. The findings from these interviews include:

Findings from the State Welfare Agency Interviews

- Disability is a factor in determining eligibility for AFDC benefits (usually in the case of a two parent family) and in determining exemption from JOBS participation. Persons with disabilities are generally exempted from JOBS participation. Programs in most of the selected states have two sets of criteria to determine disability: one set for determining --- AFDC eligibility; and another, -more strict set, for determining JOBS exemption. The JOBS programs has offered a setting for a more comprehensive assessment of persons with disabilities.
- Of the JOBS programs in these states, most do not have specific provisions or procedures that directly relate to participants with disabilities; however, most do provide individualized services for all participants, allowing those participants with disabilities to have any special needs addressed. It is extremely rare, though, for an individual with disabilities who is exempt from JOBS to participate voluntarily.

- The AFDC programs in these states refer individuals with disabilities primarily to **SSI** and Vocational Rehabilitation. Some programs also make referrals to alcohol and drug treatment centers, mental health providers, and Veterans' Affairs. Some **programs** require recipients to apply for other benefits (e.g. SSI, Unemployment **Insurance**) in order to receive AFDC benefits.
- These AFDC programs identify children with disabilities only when it is an issue for exemption from JOBS. Most of the programs do not automatically exempt recipients from JOBS if their child has disabilities and is on SSI. Recipients must show that they must care for the child full-time in order to be exempt.
- Utah's Single Parent Employment Demonstration (SPED) is unique in that it does not allow any exemptions to the program even for persons with disabilities, who are typically exempted from employment programs in other states. SPED requires all recipients to participate in some type of income-increasing activity, ranging from employment to applying for SSI benefits. SPED also allows a one-time crisis need payment in order to help the recipient get over the crisis and prevent them from becoming recipient.

4. Descriptions of Selected Programs

For the final exploratory study, we identified and examined four promising programs that provide comprehensive employment-oriented services to people with significant disabilities. For each program, we present information on the population served by the program, the vocational-related services it offers, sources of referrals and funding for the program, and evidence of success. We also discuss the distinguishing components of each program, and offer possible explanations for their apparent success in placing their clients in competitive jobs. It should be kept in mind that these programs are not representative of all training and rehabilitation programs for people with disabilities, nor are they known to be 'the best.' The main findings are:

Program Characteristics and Clients

- San Francisco Vocational Services (SFVS) offers comprehensive vocational services, **including** evaluation and assessment of **skills** -and interests, vocational and skills training, job search skills training, and job placement. SFVS mainly **serves** individuals with visual, orthopedic, or emotional disabilities, most of whom have severe disabilities.
- Career Design, Inc. (CDI) focuses on providing a variety of evaluation and job placement **services in its Worknet program**. In addition, CDI's private sector program provides case management and job placement services for workers' compensation cases. CDI's **Worknet program serves individuals with a wide variety of disabilities**, including those with orthopedic disabilities, mental illness, mental retardation, and **visual** impairments. The majority of **Worknet** clients have severe disabilities. CDI's

private sector program provides services for workers' compensation cases, and most of these clients have musculoskeletal impairments.

- Thresholds' comprehensive vocational services include vocational assessment, skills and social training, job placement, and ongoing mobile job support. Thresholds serves only those with severe mental illness, the majority of whom are diagnosed with schizophrenia.
- The Vocational Rehabilitation Department (**VRD**) of the Rehabilitation Institute of Chicago (**RIC**) offers comprehensive vocational services, including vocational evaluation, internships, job seeking skills training, and job placement. VRD serves mainly those with neurological impairments.

Program Outcomes

- SFVS served 437 individuals in 1994, 114 of whom participated in its job placement program. Of the 114 in its job placement program, 100 (87 percent) were placed into competitive employment.
- CDI served 408 individuals in its **Worknet** program in 1994, and 59 percent of these participants were placed into competitive employment. CDI also provided services for 238 workers' compensation cases in 1994, and 82 percent of these cases were successfully **resolved**.²
- Thresholds served 2,803 clients in 1994. Of the clients in day programs who were receiving vocational services, approximately 80 percent were employed while in Thresholds. This represents 50 percent of all individuals who participated in day **programs**.³ Six months after leaving Thresholds, the percent who remained employed ranged from 34 to 45 percent of all day program clients.
- **RIC's** VRD serves approximately 700 individuals each year, a portion of whom have job or training placement as a goal. In 1994, 184 clients in VRD had placement as a goal, and 84 percent of these individuals were successfully placed.

Replicability of Key Program Features

- All of the programs provide a comprehensive range of services that are individually tailored to meet each client's specific needs and goals, and three of the programs' administrators cite their comprehensive and individualistic approach as **a** key to their success. The one remaining program cited its strong connection to the business community as a key to its success; other programs also had connections to the

² Case resolution may involve a lump sum payment for injuries, medical treatment, **and/or** returning to employment.

³ Day programs are part of the multitude of services and programs that Thresholds offers, and vocational services are just one aspect of the services provided by day programs.

business community, but they did not specifically cite the connections as keys to their success.

- It appears that many of the characteristics of the **programs**, though often unique, are **replicable** -- it does not appear that these distinguishing characteristics can only exist within particular programs.

Obstacles to Evaluation

- In general, there is insufficient information to distinguish between the impact of the program on successful employment outcomes and the extent to which the program selects clients **who** have a high probability of success even without participation in the program. It is possible that the success of the program is due to the services it provides; however, it is also possible that the program may only select and serve individuals who have characteristics (e.g. motivation, work experience, skills) that enable them to be easily placed. Ray Sakalas, Director of the Vocational Rehabilitation Department for the Rehabilitation Institute of Chicago, commented that the criteria for selecting individuals to become clients of a program have **become** more rigorous due to the Federal Department of Rehabilitation's movement towards basing funding for programs on their ability to place clients into employment. The result is that **programs** may select only those individuals who have characteristics that make them easy to place, and not accept individuals who are more difficult to place.
- Programs **define** the terms "success" and "**placement**" differently. For example, some programs only consider a person placed if he/she remains in a competitive position for at least 60 days, while others may consider a person placed if they hold any job for at least one day.
- Programs differ on which clients are included in computing the placement rate. Some programs may compute the placement rate for all clients who participate in the program, but others may include only clients who were interested in obtaining a job.
- Programs focusing on workers' compensation determine **success** by how the case was resolved, not necessarily by how many clients were placed into employment.
- Programs differ in their objectives and the services they offer. For example, programs that have job placement as their primary goal only provide **services** that are focused on placing their clients into employment. Their success in placing clients, then, may be higher than other programs that include job placement as only one of several goals of the program, and therefore only devote some of their resources to placing **clients**.

D. Need for Future Policy-Relevant Research on the Employment of Persons with Disabilities

As the summary in Section C indicates, a substantial amount is known about the employment of persons with disabilities, but much more information is needed to assist the government in analyzing the impact of current policies on the employment of persons with

disabilities and in formulating policies that are designed to increase their participation in competitive employment. In this section we present our recommendations for further policy-relevant research. We begin by briefly describing some guidelines that we followed in the development of our recommendations. These guidelines are based in part on the findings reported in the previous section, but also reflect our understanding of the interests of the ODALTCP and of the ongoing debate about employment policy for working-age persons with disabilities.

1. Guidelines for the Development of a Research Agenda

The following observations guided our thinking in the development of the research agenda:

- a) *The main objective of the research agenda is to contribute to understanding of barriers and incentives to employment opportunities for persons with disabilities.* In recent years substantial interest has emerged in improving opportunities for people with disabilities to join, remain in, or return to the workforce. A growing consensus has emerged among disability advocates that increasing employment opportunities of persons with disabilities will both improve their well-being and increase their contribution to society. Removing existing barriers to employment and creating employment incentives is believed to be a powerful and cost-effective -- perhaps even cost-saving -- way to improve the well-being of those with disabilities because it will allow them, as well as society in general, to take better advantage of their productive potential.
- b) *There is a high premium on policy relevance.* The ASPE Office of Disability, Aging, and Long-Term Care is interested in how its research on independent living, long-term supports, and health services for people with disabilities can be applied to the area of employment. Our suggestions for new research are mostly relevant for DHHS policies. However, we also recognize the importance of research that is relevant to policies lying within the purview of other departments and agencies -- especially the newly independent Social Security Administration, the Department of Education, and the Department of Labor -- as well as the importance of inter-agency coordination of policies that have an impact on persons with disabilities. Collaborative projects with other agencies are possible. Information on the costs of policies and programs and on direct and indirect benefits to individuals, the government, and society as a whole is a high priority.
- c) *Good research and public policy must recognize the heterogeneity of the population of people with disabilities.* In the past, research has often failed to specify or focus on particular groups of persons with disabilities. Policies that do not recognize this fact may be very inefficient and inequitable. At the same time, policies that do recognize this fact will be difficult or impossible to implement if they require detailed information about the characteristics of persons with disabilities and their jobs. Hence, feasible policies that recognize the heterogeneity of persons with disabilities must give individual **decision-makers** -- the individual, government agents, employers, and others -- considerable

flexibility to adapt assistance to the individual's specific circumstances.

- d) *Although the focus of the research agenda is employment, research on other **aspects** of the lives of people with disabilities is very relevant.* The challenges that disabled persons face at home or elsewhere can deter participation in the labor force. **Thus**, policies that impact any aspect of the life of a person with disabilities may have direct or indirect effects on their employment -- sometimes intended, but often not.
- e) ***Other things equal, research that simultaneously addresses many issues is more valuable than separate research projects on individual issues.*** There is a need to integrate, or at least coordinate, the many aspects of disability policy, but this is difficult to do when analysis is confined to addressing each aspect in isolation. Research that **jointly examines a wide** variety of approaches to promoting employment (financial incentives, rehabilitation, training, employer accommodations, assistive technologies, personal assistance services, etc.) and their relative cost-effectiveness should **be** encouraged.

2. A Research Agenda

The following list of major research and policy issues below reflects the **guidelines** presented in the previous section. For each issue, we provide a brief discussion of its importance and briefly discuss possibilities for research that would address the issue. We group the recommendations into five categories: welfare, health, personal assistance **services** and assistive technologies, employment strategies, and other. **These** issues do not **exhaust** the potentially useful research that could be done. Other possibilities are discussed in the first section of each chapter in the larger report.

a. Public Income Support and Insurance Programs

1. *What are the effects of welfare reforms and demonstrations that do not exempt mothers with disabilities or mothers who have children with disabilities on the mothers' employment, family well-being, and AFDC participation?* **Most** welfare reforms and demonstration projects that encourage the employment and economic independence of welfare **recipients** exempt those with disabilities, and those whose children have disabilities (Chapter III). Utah's current **demonstration** program is an exception. Under this program, individualized plans to increase income from other sources (primarily from work, but also from other **sources**, including SSI and DI) are developed and implemented for all recipients. An evaluation that focused on the success of **this or similar programs** in promoting employment for recipients with disabilities, or recipients whose children have disabilities, could be **expected to provide** useful information about the potential for helping **such** recipients achieve that goal.
2. ***How** might the JOBS program be changed to encourage participation and employment **by** welfare recipients with disabilities and improve their family's' well-being?* We found no

information on the effectiveness of training programs for AFDC recipients with disabilities, but did find evidence that many persons who have self-reported health or emotional problems that make them unable to participate in education and training are enrolled in JOBS. An evaluation of how health problems are addressed in JOBS programs and the cost-effectiveness of JOBS for recipients with severe mental and physical impairments would seem warranted.

3. *What are the effects of work incentives and disincentives in the **SSI** and **DI** programs?* What would be the employment and program participation effects of changes in the implicit SSI tax on earnings and in the DI benefit “cliff”? What will be the employment and other impacts of the new three-year time limit on benefits awarded on the basis of drug and alcohol abuse?

b. **Health**

1. *To what extent do restrictions on access to health care and health insurance deter the labor force participation of persons with disabilities?* There are strong reasons to believe that high health care costs and lack of access to public health insurance for disabled workers are a significant barrier to employment for persons with disabilities, but we have found no direct, rigorous evidence that this barrier deters a substantial number of disabled workers from competitive employment. Empirical evidence is necessary, both to demonstrate the importance of this effect and to quantify the impact of policies that break the links between health insurance and employment, SSA program participation, and tax revenue. The following approaches might be considered:

- Aaron Yelowitz (UCLA) is currently studying the relationship between the value of Medicaid benefits and participation in the adult SSI disability program. Differences across states and over time in the value of Medicaid benefits may have an impact on participation at the state level. If this line of research is successful, it could be extended to examine the impact of Medicaid provisions on employment and taxes.
- Evaluations of Medicaid demonstration programs that have the effect of increasing the availability of Medicaid to low-income workers with disabilities could include specific examination of this issue. ODALTCP is already providing support for such work, in conjunction with evaluations sponsored by the Health Care Financing Administration. Evaluation of Medicaid buy-in programs, such as that in Massachusetts, is also warranted.
- The importance of the provision of health insurance for the success of employment programs could be examined as part of rigorous evaluations of such programs (see below).
- A careful study of Hawaii’s experience with employer mandates, state subsidized health insurance for low-income individuals who are not covered by employer insurance and who are not poor enough to qualify for Medicaid, and a generous Medicaid benefit for people with disabilities might provide strong evidence on this issue. Econometric analysis of state-level SSI growth in Hawaii for the 1988 to 1992 shows that growth in Hawaii was very low in comparison to other states, especially

after adjusting for other factors that had an impact on growth (Lewin-VHI, 1995). An evaluation would need to focus on changes in employment of persons with disabilities, and would need to distinguish between the role of Hawaii's health care financing system and other possible explanations of Hawaii's experience.

- The historical experience of other countries in implementing universal health care might also provide valuable information on this issue. Observers of western European experience suggest that universal coverage does play a positive role in the employment of people with disabilities in those countries, but a more systematic analysis is needed to support this observation.
 - Simulations of the employment effects of health insurance could be conducted using a major survey database (e.g., the 1990 SIPP or the 1994-96 NHIS) along with the best available evidence on behavioral responses.
2. *What impacts are current changes in employer-provided health insurance -- particularly the growth of managed care -- having on the employment and well-being of workers with disabilities?* Employer efforts to contain the growth of their own health care expenditures have resulted in rapid growth of managed care and other methods to control costs. The theoretical impact of these changes on employment of workers with disabilities is ambiguous. On the one hand, controlling cost growth reduces the burden that workers with high health care utilization may place on an employer; on the other hand, managed care insurers may limit access to care that is critical to employees with disabilities. One way to examine this issue would be to identify cases where employers have switched to exclusive contracts with managed care insurers, and compare the experiences of employees with severe impairments in such firms to those of their counterparts in other firms. Employer personnel data and insurer claims data would be needed to conduct such an analysis. Examination of claims for Social Security Disability Insurance (DI) and private disability insurance (PDI) from the firms' employees would provide another, less direct way of measuring the impact of the change on employment of workers with disabilities. ASPE is currently sponsoring some research on the impact of managed care on people with disabilities. Further, ASPE-sponsored research should include employment as one outcome in its managed care evaluations.
 3. *To what extent are community-based mental health services available to support the employment of those with mental illnesses, and how effective are they?* The Thresholds program in Chicago supports employment of those with mental illnesses with ongoing services. We do not know the extent to which states provide support for such services, the effectiveness of such services, or the cost and revenue impacts.

c. Personal Assistance Services and Assistive Technologies

1. *How can PAS and AT be used to increase employment of persons with disabilities?* Although some existing data could be exploited to examine this issue there is a need for collection of new data. Studies of state, local, insurer, and employer programs that provide support for PAS and/or AT should be considered. Studies should not be limited to use of PAS and AT in the workplace only because availability of PAS and AT away from the workplace may remove barriers to employment. The extent to which PAS and AT may complement or substitute for each other should also be considered.

2. *To what extent would removing current restrictions on funding for PAS and AT (e.g., means testing) and increasing overall funding levels increase the employment of persons with disabilities and improve their well-being, and how could **scarce** funds be more efficiently targeted to increase employment and earnings of those **with** disabilities? Current funding for PAS and **ATs** imposes limits on the types of equipment or services covered, on the place of use, and on the characteristics of the user. It would be very valuable to find or create opportunities to evaluate the impact on employment of relaxing such restrictions and to assess the associated costs and benefits.*
3. *How effective would greater outreach to those with disabilities -- regarding the availability of support for PAS, **ATs**, and various other types of support -- be in **encouraging** their employment and improving their well-being, and how much would it cost? There is some evidence that persons with disabilities lack knowledge about **ATs** and the availability of financing for PAS and **ATs** that would benefit them, including enabling them to enter the labor force or increase their earnings. Evaluations of the effects of outreach efforts intended to provide such knowledge are needed to determine whether this is a **cost-effective** approach to increasing employment of persons with disabilities, relative to other approaches.*
4. *Who provides PAS to disabled workers in the workplace today? To what extent are they provided by co-workers who have other duties to perform, on a formal or informal basis? Do firms or employee cooperatives hire attendants to serve multiple workers? Case studies of PAS use in the workplace could help answer these questions. How do assistants fit into the culture of the workplace? How are they counted against "full-time equivalent" quotas?*
5. *What would be the costs and benefits of a tax credit for PAS? The Clinton Administration proposed such a policy in its health reform proposal.*
6. *Should the federal government pursue **the** development of standards in telecommunications and computer technology that would aid in the development of access technologies for workers with disabilities? Appropriate standards allow manufacturers of telecommunications equipment and computer technology to design products to suit the special needs of workers with disabilities. Building these accommodations into products during the design phase is often a much less expensive way of providing access to persons with disabilities than subsequently modifying existing products. While the potential gains of appropriate standards are clear, it is critical that any standards adopted are flexible and easily modified when technology changes and new products become available. Rigid standards may have the unintended effect of stifling innovation and creativity.*

d. Employment Strategies

1. *How successful and cost-effective are "individualistic, comprehensive" programs that help **persons with disabilities** obtain **the goal** of employment? The programs selected for the case studies (Chapter VI) all use individualistic, comprehensive strategies to help persons with disabilities obtain employment. While these programs show promise, more rigorous evaluations are needed to address the following issues:*

- Are these programs cost-effective relative to other types of programs, including smaller, less comprehensive ones?
 - To what extent are positive outcomes actually due to the programs' interventions? Some of the evident success of the programs may be due to the selection of clients who have a high probability of future employment even without the program.
 - How important are individual program features, such as job placement vs. job training, in determining outcomes?
 - Is the availability of assistive technologies and personal assistance services to clients critical to success for some groups? Do programs take advantage of innovations in assistive technologies?
 - How do employment strategies and their success depend on the type and severity of disability?
 - How important is client age and prior work experience to program success?
 - How much do these programs cost and what are the economic returns? From the perspective of the government, can some programs pay for themselves through reductions in future transfer payments to clients and increases in future tax revenues from clients? How does this vary with client characteristics?
 - What role does access to health care and health insurance play in the success of these programs?
2. *What is the most efficient way to provide assistance that gives those **with disabilities** maximum control over how the assistance is used to support their employment (e.g., tax credits or vouchers), and how cost-effective would such a system be in increasing employment and earnings among persons with disabilities in comparison to programs **that give the consumer less** control (e.g., case management or agency-directed allocations of **ATs, PAS, etc.**)? While credits and vouchers have great appeal because recipients can use them in ways that are tailored to their particular needs, we have not found empirical evidence on the impact of such funding or on the extent to which such funding would in fact be used in an efficient manner. Rigorous evaluation of demonstrations that use vouchers or credits, including impact analysis and analysis of the extent to which such programs pay for themselves, would be very desirable. Results should be compared to findings from analyses of individualistic employment programs that provide comprehensive services (see above) and of case management demonstrations such as **SSA's** Project Network. ODALTCP might also benefit from reviewing the plans for the Project Network evaluation and assessing whether additional evaluation might provide useful policy information for ODALTCP programs that would otherwise be lost.*
3. *To what extent do programs under the Job Training and Partnership Act (**JTPA**) provide assistance to persons with disabilities, to what extent do JTPA policies favor or discriminate against persons with disabilities, and how might JTPA **become** more cost-effective in providing assistance to persons with disabilities? We found that JTPA funds support many San Francisco Vocational Services clients, and that JTPA is a source of client referrals.*

While JTPA supports many employment programs targeted at those with disabilities, current JTPA performance standards have incentives to “cream” among the disabled population and may underserve them as a result (Bamow, 1994). It would be worthwhile to at least explore the role of JTPA -in funding employment programs for persons with disabilities further and, if feasible, evaluate the impact of that funding.

4. *To what extent is the **sensitivity** of employment of workers **with** disabilities to the business cycle influenced by current disability and unemployment programs and how could these programs be redesigned to better meet the temporary needs of this population?* Several studies show that participation in Social Security’s disability programs is sensitive to the business cycle, and other studies show that workers with disabilities are often both the “first-fired” in a recession and the “last-hired” in a recovery. Better unemployment insurance (UI) benefits might reduce the impact of recessions on disability program participation by helping those with disabilities through difficult times. A number of demonstration projects have been conducted with support from the Department of Labor during the past 15 years, with the objective of determining how changes in the UI benefit structure affect return-to-work. To our knowledge nobody has examined the impact of the demonstration benefits on people with disabilities. If data collected would permit it, analysis of the impact of these demonstrations on workers with disabilities would be worthwhile; if not, future demonstration plans should consider the collection of appropriate data.
5. *What is the impact of economic **restructuring** on employment opportunities for persons with disabilities, and what policies would assist them in adapting to permanent changes in the nature of work?* Some studies have documented changes in the nature of work, and there are reasons to believe that these changes reduce employment opportunities for some persons with disabilities, but improve prospects for others. More information is needed on what differentiates the “winners” from the “losers” in order to develop cost-effective policy responses.
6. *How **important** is the role of employers and private disability insurers in return-to-work for newly disabled workers, and how could public policy best encourage employer and insurer **efforts** in this area?* The Americans with Disabilities Act (ADA) places substantial legal responsibility on employers to employ workers with disabilities. There is a general belief that efforts of employers to accommodate or otherwise assist employees with disabilities are key to the latter’s success in wmpetitive employment. Private disability insurers, who are interested in controlling their claims **costs**, may also play a key role. Yet there is little hard evidence on the impact that employers and insurers can have on employment of workers with disabilities, or on how public policy can encourage that role. Evaluation of employer/insurer “disability management” programs and examination of how public policy can create incentives for employers and insurers to promote employment of workers with disabilities is **needed**. Research on small businesses that are exempt from ADA accommodation requirements is also needed. Such businesses may serve as useful control groups for studies of larger firms that are not exempt.
7. *To what **extent is** the relatively low labor force participation of persons with disabilities due to their low /eve/s of education, rather than their disabilities, and to what extent are low /eve/s of education due to educational barriers faced by persons with disabilities?* In many employment studies “**disability**” may be serving as a proxy for education. It is important to

understand the many links between education, disability and work in order to determine whether a particular intervention will be effective. Removing barriers to education and training will be most effective in promoting work if lack of education and training is the primary deterrent to work, not the disability itself.

8. What *more can be learned from the successes and failures of policies and employment strategies that have been implemented in other countries?* How important are rehabilitation programs? Benefit limitations for younger workers? Incentives for employers?

e. Other

1. What can be *learned from existing longitudinal data and what other opportunities are there to improve our understanding of the dynamics of disability, employment, and welfare?* Data from simple cross-sections tell us little about dynamic aspects of disability and employment that are critical to the design of appropriate policies.

- To what extent do educational and other characteristics of persons who have at any time experienced or been labeled as having had a disability differ from the characteristics of those with disabilities who are observed in a single cross-section? Characteristics may be quite different because a relatively large share of those in a cross-section will have very long term, or **even** lifetime, disabilities. Age at **onset** and duration of disability are important aspects to consider.
- What are the characteristics of the disablement process, and how do they vary? What are the critical determinants of whether an impairment or health condition **becomes** a work disability? What roles are played by family members, employers, government programs, private insurers, and **medical** and rehabilitation professionals?
- To what extent are persons with disabilities more responsive to employment incentives and training immediately following disablement than years later, when their skills may have **deteriorated** and **when** they have grown **accustomed** to living on insurance or welfare benefits?
- **Are** AFDC families that have one or more children with disabilities typically families that would be out of poverty if it were not for their children's disabilities, or are they typically families whose low education levels and skills contribute to both their poverty and their children's disabilities? Is the extremely high rate of disability among older AFDC mothers due to long-term dependence on a core group of women or because the onset of disability at middle age is a frequent cause of AFDC participation for older women?

Existing longitudinal surveys, such as the Panel Survey of Income Dynamics (PSID), **the** Health and Retirement Survey (HRS), the National Longitudinal Survey of Youth (NLSY) and High School and Beyond (HSAB) should be **exploited** as much as possible to learn more about the work and welfare transitions of persons with disabilities and **changes** in their economic well-being over time. Analysis of foreign longitudinal data sets such as the 1 I-wave German Socio-economic Panel could also be fruitful. Opportunities to collect and

analyze other longitudinal data are also needed.

2. *What analysis should be conducted using **the** 1994-96 disability supplement to the **NHIS** when the data become available?* These data will offer many opportunities to conduct analyses that have not been possible in the past, as well as to replicate earlier research. For instance, it will be possible to examine how work patterns vary by type of disability at a level of detail that has not been possible previously.
3. *What more can be learned from **survey** data that are already available, or soon to be available, about the employment of persons with disabilities or of parents of children with disabilities?* There are several existing sources of data that may be further analyzed to learn more about the labor force participation of persons with disabilities: the 1990 **SIPP** has sufficient information on disability to explore employment differences among persons with different types of impairments, and to examine the relationship between children with disabilities and their parents' employment; and the assistive devices supplement to the 1990 **NHIS** (NHIS-AD) could be used for analyzing the importance of assistive technology in the employment of persons with disabilities, although the number of persons with disabilities in the sample is relatively small.

We conclude with two general observations. First, in the past many inexpensive opportunities to study the employment of persons with disabilities have been missed because of failure to include appropriate measures of disability or employment in databases that were being constructed for other purposes. We strongly recommend that ODALTCP consider employment for those with disabilities as an issue in any evaluation of a demonstration or program that it supports, if at all relevant. We further recommend that ODALTCP do whatever it can to support similar efforts in other government departments and agencies.

Second, there is an evident need for integration of government policies and programs for persons with disabilities. At the federal level, major programs of the Department of Health and Human Services, the Department of Education, the Social Security Administration, and the Department of Labor all provide support of some sort. Other federal agencies and state and local governments also provide support in a variety of ways. Research is needed on how programs and services could be integrated in ways that would promote employment, improve the lives of persons with disabilities, and reduce waste of government resources.

EXHIBIT I

Survey Data on Health and Disability”

Survey	Date(s)	Sample	Type of Disability	Identification of Disability	Measures of Disability	Scope of Disabled Population
Current Population Survey (CPS)	Conducted monthly; March surveys have information on persons with disabilities.	Nationally representative sample of approximately 160,000 persons.	Physical, mental, and other health problems.	Self-reported information on ability to work. Receipt of SSI or Medicare (adults under age 65).	Work limitations.	National estimates of adults (ages 15 to 64) with work limitations.
National Health Interview Survey (NHIS)	Conducted annually since 1957.	Nationally representative sample of approximately 116,000 persons.	Physical, mental, and other health problems.	Self-reported information on functional limitations. Receipt of SSI or Medicare (adults under age 65).	Work and activity limitations.	National estimates of persons with ADLs and IADLs; also adults with work limitations.
NHIS Supplement on Serious Mental Illness	1989 Topical Module.	113,000 persons in the 1989 NHIS. Children age 4 or younger are excluded.	Severely disabling mental illness.	Self-reported information on serious mental and emotional disorders. Receipt of government disability payment.	Work and activity limitations.	National estimates of persons with serious mental illnesses.
NHIS Disability Supplement	1994-1995 (phase I) and 1994-1996 (phase II)	Approximately 220,000 persons from NHIS and 4,000 persons from ss records. Phase II samples 40,000 persons.	Physical, mental, and other health problems.	Self-reported information on functional limitations. Receipt of SSI.	Work and activity limitations.	National estimates of persons with disabilities (all ages).
1990 Census	1990	Short form surveys sent to entire U.S. population; long form survey (includes questions on disabilities) sent to one-in-six households.	Physical, mental, and other health condition lasting for 6 months or longer that limits activities.	Self reported information on work and activity limitations caused by disabilities.	Work and activity limitations.	National estimates of persons with work and activity limitations.
National Health and Nutritional Examination Survey (NHANES)	Four most recent in a series of seven national examination studies conducted since 1960.	Most recent survey on random sample of approximately 40,000 persons, with oversampling of children, elderly, African-Americans, and Hispanics.	Physical, mental, and other health problems.	Functional limitations of elderly determined during examination.	Activity limitations.	National estimates of physical and mental disease prevalence.
Survey of Income and Program Participation (SIPP)	Conducted annually; topical modules on disability in 1984, 1987, 1990. Collects longitudinal data over 32-month period.	Nationally representative sample of approximately 32,000 persons.	Physical, mental, and other health problems.	Self-reported information on functional limitations.	Work and activity limitations.	National estimates of children and adults with disabilities.

EXHIBIT I (continued)

Survey Data on Health and Disabilities*

Survey	Date(s)	Sample	Type of Disability	Identification of Disability	Measures of Disability	Scope of Disabled Population
Medical Examination Study (MES)	1994-1995 (planned).	Not known.	Physical, mental, and other health problems.	Clinical and functional diagnoses verifying self-reported information.	Clinical B a n d work and activity limitations.	National estimates of persons with disabilities.
ICD Survey of Disabled Americans	March 1986 (telephone survey).	Random sample of 12,300 households and 1,000 persons with disabilities.	Physical, mental, and other health problems.	Self-reported information on functional limitations.	Work and activity limitations.	National estimates of disability among adults age 16 and over.
Health and Retirement survey (HRS)	Collects longitudinal data every two years: 1st wave started 1992, 2nd wave planned 1999.	Nationally representative sample of approximately 12,000 persons ages 51 to 61 in 1992.	Physical, mental, and other health problems.	Self-reported information on functional limitations. Also identifies medical conditions.	Work and activity limitations.	National estimates for persons in age group.
Panel Study of Income Dynamics (PSID)	Longitudinal data collected annually since 1968.	11,000 families in 1994. Over-sampling of blacks and hispanics.	Physical, mental, and other health problems.	Self-reported functional and work limitations. Some years more detailed than others.	Work limitations, ADLs, IADLs (some years), learning disabilities of children (1995)	National estimates of household population (all ages).
Survey of Disabled Veterans (SVD)	1989.	10,000 veterans with service-connected disabilities.	Physical disability	Self-reported type, degree, and source of physical disability.	As determined by veterans disability benefit program.	Veterans with compensable service-connected disabilities
Survey of Disabled and Nondisabled Adults	1972.	Nationally representative sample of 16,000 adults (ages 16 to 64).	Physical, mental, and other health problems.	Self-reported functional and work limitations.	Work and activity limitations.	National estimates of adults with disabilities.
Survey of the Recently Disabled	1971.	In depth survey of 500 persons (age 18 to 64) with disabilities that began recently.	Physical, mental, and other health problems.	Self-reported information on functional limitations.	Work and activity limitations.	Newly disabled adults.
Survey of Disability and Work	1976.	Approximately 10,000 adults (ages 16 and 64). Persons with disabilities over sampled.	Physical, mental, and other health problems.	SSDI beneficiaries or self-reported work limitations.	Work limitations for persons not receiving SSDI.	National estimates of adults with work limitations.
Luxembourg Income Study	Cross-sectioned and longitudinal survey data from 26 countries, miscellaneous years	Varies by country and year	Varies by country and year	Primarily based on disability income and self-reports, but varies by country and year	Varies by country and year	National for nations represented

EXHIBIT I (continued)

Survey Data on Health and Disabilities*

Survey	Date(s)	Sample	Type of Disability	Identification of Disability	Measures of Disability	Scope of Disabled Population
National Longitudinal Survey of Youth	1979 to 1993.	More than 12,600 individuals have been interviewed annually since 1979.	Physical, emotional, mental, and health conditions.	Self-reported information on functional limitations, and physical and mental health conditions.	Work and activity limitations.	Survey sample includes individuals who were aged 14 to 21 in 1979.
Epidemiologic Catchment Area Study	1980 to 1984	18,244 respondents aged 18 and over in five study areas.	Prevalence rates of specific mental disorders.	Uses a Diagnostic Interview Schedule (a case identification instrument that assesses the presence, duration, and severity of individual symptoms)	N/A	National estimates of prevalence of specific mental dii among US population aged 18 and over.
National Comorbidity Survey	1990 to 1992.	Nationally representative sample of 8098 respondents aged 15 to 54.	Comorbidity of substance use disorders and nonsubstance psychiatric disorders.	Uses a Diagnostic Interview Schedule.	N/A	National estimates of prevalence of comorbidity of substance use disorders and nonsubstance psychiatric disorders among US population aged 15 to 54.
HIV/AIDS Surveillance	June 1982 to present.	Reported AIDS cases in all U.S. states and territories.	HIV/AIDS.	Diagnosis of AIDS	N/A	National Estimates of individuals with AIDS.

• For further description of available disability data see Office of the Assistant Secretary for Planning and **Evaluation**, Office of Disability, Aging, and Long-Term Care **Policy**, "Disability Data for Disability Policy: Availability, Access and Analysis", U.S. Department of Health and Human Services: Washington, DC, March 31, 1995.

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CHAPTER TWO

THE LABOR MARKET FOR PERSONS WITH DISABILITIES

A. Introduction

If the **employment** of persons with disabilities is a desirable social objective, **then a better** understanding of the factors affecting **the** labor market for disabled workers is a necessary starting point for the development of public **policies** to promote their **employment**. Therefore, in this chapter we present a review of the literature that examines the major factors **believed** to affect the labor supply of persons with disabilities and the demand for disabled workers by firms. Below, **we describe** the organization of this discussion, summarize our findings, and describe issues for future research that **have not been** adequately addressed in the existing literature on the labor market for persons with disabilities.

1. Overview of **the Chapter**

We begin by presenting an overview of the labor **market** for persons with disabilities, describing the historical trends in labor force participation and earnings of persons with disabilities **compared** to their non-disabled **counterparts**. **We also present descriptive** data from national **surveys** that provide information on the characteristics of persons with disabilities. This section concludes with a brief discussion of the labor force participation and disability policy issues in other countries.

Next, **we** review studies of the major factors **affecting** the labor supply of persons with disabilities, including: income support programs; health insurance coverage, its importance for persons with disabilities, and the disincentives associated with coverage **being** linked to participation in public income support programs; and the effect of impairment on earnings.

In **the** final section of this chapter, **we review** studies that address issues related to the demand for disabled workers by firms. The **topics** discussed include: the effect of business cycles and industrial restructuring on the **employment** of persons with disabilities; wage discrimination; and workplace accommodations provided by firms for their employees with **impairments**.

2. Summary of the Findings

Our main findings from the literature review include:

Trends in the Labor Force Participation and Earnings of Persons with Disabilities

- The labor force participation of men, both with and without disabilities has been declining; the largest decline has been among disabled men age 55-64 (Yelin, 1993).
- The labor force participation of women, both with and without disabilities has been increasing dramatically for those without disabilities and steadily for those with disabilities. The greatest increases were experienced by women age 16-44 (Yelin and Katz, 1994a).
- The percent of disabled workers who are employed full-time has been declining and rates of part-time employment have been increasing. In contrast, full-time employment among workers without disabilities has remained relatively constant, while part-time employment has increased, although not by as much as for workers with disabilities (Yelin and Katz, 1994b).
- In general, there was a substantial decline in the earnings of workers with disabilities relative to those of workers without disabilities during the 1960s. There are many possible explanations of this trend, but we have not found any study that attempts to differentiate among them (McNeil, 1969).

Characteristics of Disabled Workers

- Workers with severe disabilities are more likely to be older, female and black or Hispanic, and to have less education than workers without severe disabilities (NIDRR, 1992).
- Workers with severe disabilities experience higher unemployment and lower earnings than workers without severe disabilities and are more likely to be employed in service or craft occupations or to be self-employed (NIDRR, 1992) (Mathematica Policy Research, 1990).
- Older workers who become disabled are substantially less likely to return to work, less likely to recover from disability, and equally likely to fall into poverty as younger individuals following the onset of disability (Burkhauser and Daly, 1994b).
- A recent study examined the employment changes among workers between the ages of 51 and 61 after the onset of disability. Subsequent to the onset of a disability, about one-fourth of workers change employers, about one-fourth exit from the labor force, and approximately half remain with their original employer. Within this group, labor force withdrawals were positively associated with age and negatively associated with education (Daly and Bound, 1994).

International Comparisons

- We find little population-based cross-national research on the labor force participation rates of persons with disabilities. Most cross-national comparisons tie the definition of disability to receipt of disability transfers. An exception **is a** comparison of labor force participation in the U.S. and Germany using national sample data. The study shows that the overall participation rates are approximately the same in the two countries, but that working age men with disabilities in Germany are more likely to be working full-time and receive higher earnings than their U.S. counterparts (Daly, 1994).
- The U.S. has a lower disability transfer rate than Germany, Sweden, and the Netherlands. **Within age groups, the U.S. had the lowest rates for those aged 45 to 64, but the German rate was by far the lowest for those aged 15 to 44: just five per thousand compared to 23 per thousand in the U.S.** The study attributes the low German rate for young workers to both the rehabilitation focus of German policy and the relatively low income replacement rate for younger transfer recipients (**Aarts and DeJong, 1994**).
- Other industrialized countries, particularly those of western Europe, have a variety of incentives and supports to aid the labor force participation of workers with disabilities. Among the types of programs supported are disability allowances provided regardless of employment status, hiring quotas, vocational rehabilitation, constant attendance allowances, wage subsidies, job placement services, sheltered employment, payment for work-related assistive technology, and universal health insurance (**Aarts and DeJong, 1994**) (**Zeitzer, 1994**).

Income Support Programs and Their Effect on Labor Supply

- Four of the major programs (Supplemental Security Income (SSI), Veterans Pensions, Aid to Families with Dependent Children (AFDC), and General Assistance (GA)) are **"means-tested"** -- eligibility requires that the individual's or household's income and other resources fall below specified limits. Although special provisions of these programs have been designed to encourage work, in general any earnings are implicitly **"taxed"** by a reduction in benefits.
- The other four major programs (Social Security Disability Insurance (DI), Workers Compensation (WC), Veterans Compensation (**VC**), and Private Disability Insurance (PDI)) are designed to provide insurance benefits to replace earnings for workers (including members of the armed forces) who suffer significant reductions in earnings due to a disability. **DI** and PDI provide benefits regardless of the cause of disability, and WC and VC provide benefits for disabilities caused by a work-related injury. With the exception of VC and, in some cases, WC, all benefits are lost if the recipient returns to work at a sufficiently high level of earnings.
- Some individuals qualify for benefits from multiple programs, and the work disincentive from the combined programs may be substantially greater than that from just one of them; it is the combined incentive that is relevant. An important example is that the work disincentive associated with **DI** is very low for a worker with high earnings

because **DI** benefits replace a low share of his or her earnings, but combined benefits from **DI** and **PDI** may replace as much as two-thirds of earnings.

- With some exceptions, individuals who qualify for income payments under these programs automatically qualify for medical benefits, and the value of these benefits is likely to be considerable for a **person with disabilities** -- perhaps larger than the income benefit itself.
- The large, long-term decline in the labor force participation rates of men between the ages of 45 and 64 is mirrored by the increase in the percentage of men in this age group who are **DI** beneficiaries (Parsons, 1960). A variety of evidence indicates that the increases in the generosity of **DI** benefits relative to earnings does account for a significant share of the decline in older male labor force participation rates, but that much of this decline is due to other factors (**Haveman** and Wolfe, 1984) (Haveman, Wolfe, and **Warlick**, 1987) (Bound, 1989) (Kreider, 1994). The share due to **DI** benefits has not been precisely estimated. This literature does not include significant analyses of the effects on women or younger men. The role of private disability insurance, alone and in combination with **DI**, has also been largely ignored.
- The substantial literature on Worker's Compensation finds conclusive evidence of the effect of **WC** benefits on work effort (Butler and Worall, 1985) (Worall et al., 1988) (Johnson and Cndrich, 1990) (Krueger, 1990) (Meyer et al., 1991) (Currington, 1993). The strength of the estimated effect depends on the nature of the program and the methodology used to estimate it. We have not found a study that carefully reviews all of the **WC** literature and examines the relationships between findings, the nature of the program, and methodology. The findings of the studies reviewed for this report suggest that the substantial increases in generosity of **WC** that occurred following federal legislation in 1972 may have contributed significantly to the decline in labor force participation of older men, but to our knowledge, no one has attempted to estimate the magnitude of this effect.

Health Insurance Coverage and Incentives to Work

- Working-age persons with disabilities are less likely to have private insurance and are more likely to receive public health insurance through Medicare and Medicaid than the overall population (**LaPlante**, 1993).
- Working-age persons with disabilities use substantially more health care services than persons without disabilities (Lewin-VHI, **1995a**).
- Average health care expenditures for those with disabilities are more than seven times the average of those for persons without disabilities (Lewin-VHI, **1995a**).
- There are compelling reasons to believe that high health care costs and access to health insurance discourage labor force participation and encourage participation in **SSI** and **DI**, but we have found no research that examines the effect of these factors on labor force participation or program participation of persons with disabilities. The

following findings for other populations provide some empirical support for this proposition:

- ⇒ Research on the work disincentives associated with high health care costs and access to public and private insurance has focused on how the availability of Medicaid affects the labor supply and AFDC **program** participation of young mothers. Although evidence of work disincentives is mixed, the more recent and methodologically superior AFDC studies find statistically significant and substantial effects (Blank, 1988) (**Winkler**, 1990) (Moffit and Wolfe, 1992) (**Yelowitz**, 1994).
- ⇒ One study on the availability of continuation of employer coverage for workers who retire early finds that the availability of such coverage is a significant inducement to early retirement for workers (Gruber and Madrian, 1993).

The Effect of Impairment on Earnings

- Numerous studies have demonstrated the impact of poor health on earnings, both through its impact on hours of work and on wages (Luft, 1975) (**Bartel** and Taubman, 1979) (Chirikos and **Nestel**, 1981). Fewer studies, however, have focused specifically on the experience of persons with severe disabilities or on the differences across individuals with different types of impairments.
- A recent study that focuses on disability found that wage offers to individuals with specific impairments range from 74 percent to 101 percent of those to individuals without impairments, depending on impairment and holding other important characteristics of the worker constant. This study also shows that wage losses from specific impairments vary by gender: limitations to mobility and strength reduce male wages more, and limitations to sensory capacities and appearance reduce female wages more. The methodology used to develop these estimates is complex and uses strong assumptions; hence these results should be viewed with some caution (Baldwin, Zeager, and Flacco, 1994).
- A study that compares the earnings of persons before and after the onset of disability indicates that women and persons with less than a high school education experience the largest declines in average earnings following the onset of disability (Burkhauser and Daly, **1994b**).

Business Cycles and Industrial Restructuring

- There is evidence that cyclical changes in the economy affect the labor force participation of persons with disabilities to a greater extent than that of persons without disabilities (**Yelin** and Katz, 1994a). Applications, and to a lesser extent, awards, for DI and SSI benefits are also sensitive to the business cycle (Lewin-VHI, 1995b).
- Economic restructuring reduces good job opportunities for **disabled workers with low skills, but may increase opportunities** for those with technical expertise. To date, however, there are no estimates of the magnitude of the effects that economic restructuring has on workers with disabilities.

Wage Discrimination Against Persons with Disabilities

- Recent wage discrimination studies find that male and female workers with disabilities receive wage offers that are, on average, 86 and 90 percent, respectively, of those made to workers of the same gender without disabilities and with comparable levels of measured productivity. These studies differ from studies of the effect of impairment on earnings because they attempt to control for productivity. **It** could be, however, that a substantial portion of the wage differences reported is due to unmeasured differences in productivity (Baldwin and Johnson, **1992a**, 1992b).

Workplace Accommodations by Employers

- Only two national data sets have collected information on work accommodation. The 1978 Survey of Disability and Work and the 1991 Health and Retirement Survey. These surveys show that between one-fourth and one-third of workers who become impaired are accommodated following the onset of their conditions (Burkhauser, Butler, and Kim, 1994) (Daly and Bound, 1994).
- The Americans with Disabilities Act (ADA) may be limited in its ability to increase the prevalence of accommodation for economic reasons. Costs of accommodation would be expected to rise and the ability of employers to shift those costs onto workers will be reduced under the ADA (Chirikos, 1991). There is, however, no empirical research currently available to support this theory.
- Work accommodation has been shown to increase the length of time a worker will remain at his job following the onset of a limitation (Burkhauser, Butler, and Kim, 1994).
- Among persons who continue to work following the onset of disability, most (66 percent) remain with their current employer. Those who stay at the same job are more likely to be accommodated than those who change employers; however, those who change jobs are significantly more likely to experience a reduction in job demands (Daly and Bound, 1994).

3. Issues for Future Research

This review of the literature on the factors affecting the labor market for persons with disabilities has identified several areas in which future research would help illuminate discussions of policies intended to improve the labor force participation of persons with disabilities. These include:

- In general, we need to know more about how disabilities occur, how people come to define their conditions as work disabling, and the role of employers, family members, rehabilitation, and treatment in enabling persons with disabilities to work.

- Few of the studies reviewed in this report distinguish among persons with different types of disabilities, including differences in the timing of onset, in their analyses of disability' issues.' Future research should recognize and incorporate into the analysis the heterogeneity of persons with disabilities to better understand the barriers to labor force participation encountered by persons with different types of impairments.
- The effects of Medicaid provision with SSI and Medicare provision with DI on the labor force participation of persons with disabilities have not been studied. Also, the impact of private insurance contingent on employment has not been addressed.
- Evaluation of the effect of extending health insurance coverage (or supplementing employer coverage) to SSI and **SSDI** recipients who return to work is needed. One potential evaluation is of the Massachusetts Medicaid program where working persons with disabilities may buy into the program to obtain services needed specifically by persons with disabilities.
- Comprehensive analysis of issues related to the labor force participation of persons with disabilities has not been conducted using the 1990 **SIPP** data. Some of the research presented in the report could be updated or expanded using that data set.
- While there is a considerable amount of cross-sectional data on the labor force participation and characteristics of workers with disabilities, cross-sectional survey may be biased towards over-representation of persons with the most severe, long-term disabilities. Additional, longitudinal research that examines the experiences of workers before and after the onset of impairment may provide useful information about the dynamics of disability and where public policies may be effective in promoting labor force participation following a disability.
- Many studies have examined the impact of the federal DI program on the labor force participation of older men. This literature has not included significant analyses of the effects on women or younger men. It has also not considered the role of private disability insurance or the incentives created by multiple program interactions. In addition, research and demonstrations of how changes in SSI and **SSDI** benefit structures can affect the likelihood that individuals will return to work are needed.
- A longitudinal sample survey of younger SSI and **SSDI** recipients is necessary in order to research the disability and labor force participation and labor force dynamics of this population. While there exists a source of longitudinal data on older individuals (the HRS), there is no comparable source of data on younger individuals. This is an important issue given the growing concerns about the large number of younger individuals on the disability rolls. One important issue that could be addressed with such data is the extent to which low levels of education and skills are due to barriers to education faced by those with disabilities. Such data might also be used to investigate the extent to which educational differences, rather than disabilities, account for employment differences between those with and without disabilities.
- Substance abusers are now subject to a three-year time limit on the receipt of federal disability benefits, and are required to undergo treatment and rehabilitation for their

conditions. Future research should examine the outcomes for such individuals, including the likelihood of recovery and employment.

- The earnings of workers with self-reported disabilities have declined relative to those of workers without disabilities during the 1980s. There are many possible explanations for this trend, but we have not found any research that makes a serious attempt to differentiate among them. In addition, further research is needed on the extent to which differences in education and training may account for employment differences among persons with disabilities, and the extent to which disability is a barrier to education.
- It is clear that economic restructuring is having an adverse effect on job opportunities for low-skilled workers with disabilities, but restructuring is also offering new opportunities for disabled workers who are highly skilled. There are, however, no estimates of the impact of economic restructuring on the labor force participation of disabled workers.
- Studies of the prevalence, types, and impacts of workplace accommodation provided for workers with disabilities are few. This is, in part, due to a lack of national data on workers who receive, and employers who provide, accommodation. More research, particularly on the effectiveness of accommodation, is warranted.
- The few studies that examine the costs and effectiveness of workplace accommodation often suffer from a common flaw: they rely on observations from cases in which accommodation has been both offered and accepted. One would expect estimates of the impact of accommodation on employment to be most favorable under these circumstances because it is likely that accommodation is only implemented when it is easiest and most effective to do so. Future research on the effect of accommodation on employment needs to address the issues of what types of workers with disabilities are offered accommodation, and what are the characteristics of those who accept accommodation.
- There is, to date, no research on the effect of the Americans with Disabilities Act (ADA) in promoting the employment of persons with disabilities. Research on this, and on small firms, for whom the ADA does not apply but who employ a significant proportion of disabled workers, is necessary.
- Cross-national comparative research on combinations of health care, rehabilitation, and personal services. in promoting work among persons with disabilities would further inform the design of disability policy in the U.S. The German Socio-Economic Panel and the British household survey may offer opportunities for this type of research.

B. Overview of the Labor Market for Persons with Disabilities

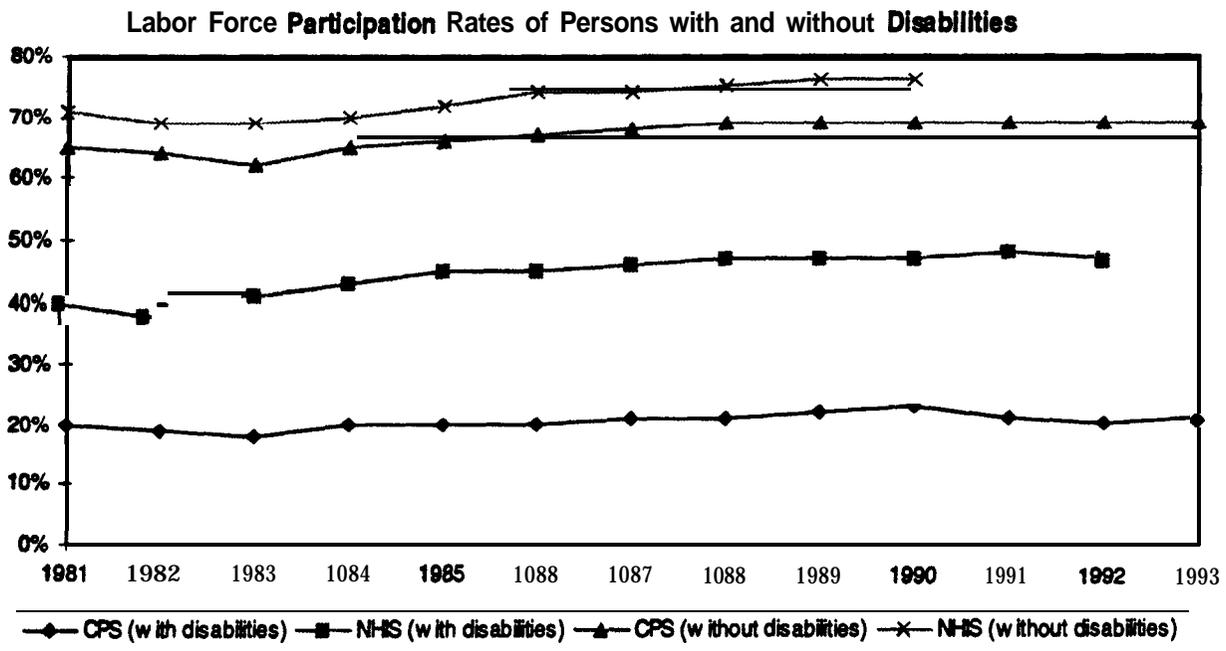
In this section, we present an overview of what is known regarding the characteristics of working-age persons with disabilities, and their historical labor market experience compared

to persons without disabilities. We also present information from two recent studies that view the labor force experience of disabled workers from a longitudinal perspective. We conclude this section with a discussion of the labor force participation experience of those with disabilities in other industrialized countries.

1. Trends in Labor Force Participation

Two periodic national surveys allow for the examination of trends in the labor force participation of persons with and without disabilities: The Current Population **Survey** (CPS) and the National Health Interview Survey (NHIS). An examination of the overall labor force participation rates derived from the two surveys highlights two interesting points (Exhibit II.B.1).

Exhibit II.B.1



Source: Personal correspondence with E. Yelin, 1993.

First, rates of participation across the two surveys differ dramatically for persons with disabilities? This is due to the manner in which disability status is defined and ascertained by each survey. The CPS uses questions that focus on the respondent's work activity to determine disability status. For example, a positive response to either of the following questions would classify an individual as having a disability in the CPS: "Does anyone in this household have a health problem or disability which prevents them from working or which limits the kind or amount of work they can do?" or "Is there anyone in this household who ever retired or left a job for health reasons?" In addition, if illness was cited as a reason for not working in the previous week or previous year, then the individual would be considered as having a disability. By contrast, the **NHIS** uses a much broader criterion for determining the disability status of a respondent. Disability is defined in terms of activity limitation due to chronic conditions, injuries, or **impairments**. Respondents are asked if they are prevented from doing their major activity or if they are limited in the amount or kind of their major activity. This definition of disability is far less strict than the work-constrained criterion used in the CPS. These differences result in higher labor force participation rates among persons with disabilities as tabulated from the **NHIS** than from the CPS.

Second, although the levels of labor force participation for persons with disabilities differ greatly between the two surveys, the patterns over time are the same in that both surveys show a relatively constant level of labor force participation over **time**.⁵ The aggregate trend in labor force participation, however, masks very different trends in the participation rates of particular age and gender subgroups.

Yelin and Katz (**1994a**) analyzed the trends in labor force participation among persons with and without disabilities from 1970 to 1992 using the **NHIS** data. Looking first at labor force participation regardless of disability status, the authors find that among males, labor force participation has been declining dramatically for those aged **55-64** but has remained fairly constant among those under age 55. Among women, labor force participation has risen

⁴ Differences in the labor force participation rates among persons without disabilities also exist across the two surveys. This is likely due to minor differences in how labor force participation is defined in each survey.

⁵ Labor force participation rates may also vary depending on the definition used. For example, those based on work activity last week may report higher rates of **non-participation** than those based on work activity last year.

dramatically in the under 55 age group over the entire 1970 to 1992 time period. For women aged **55-64**, participation rates remained relatively constant until the early **1980's**, when they began to gradually rise. Overall, the ratio of female to male labor force participation rates has risen from **.56** in 1970 to **.81** in 1992.

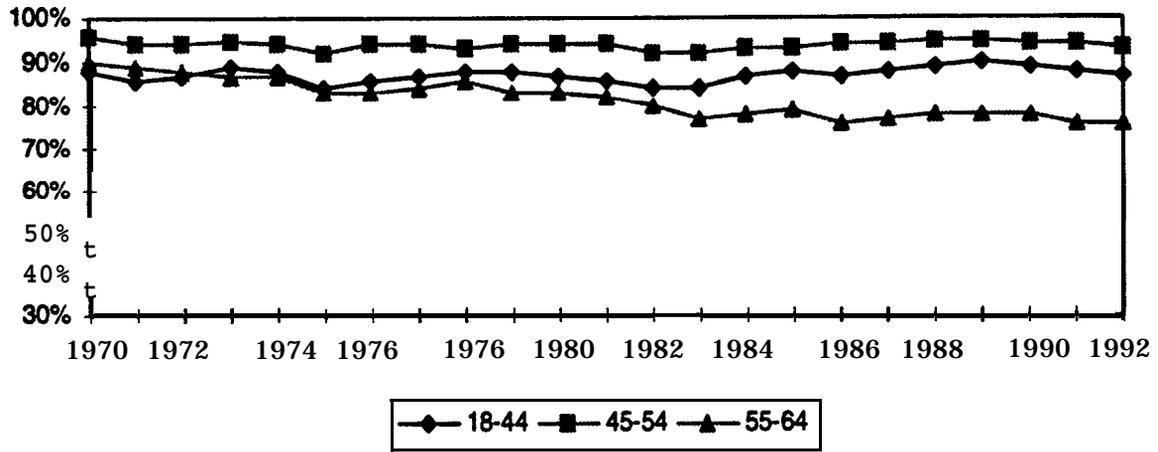
Yelin and Katz compare the trends in labor force participation of persons with and without disabilities by age and gender subgroups. Among men, labor force participation of those without a disability remained relatively constant from 1970 to 1992 for those aged **18-44** (ranging between 84 percent and 90 percent), but the participation rates for men 18-44 with a disability decreased from 72 percent to 61 percent over the same time period (Exhibit **II.B.2**). For men aged 55-64, those without a disability experienced a decrease in labor force participation from 90 percent in 1970 to 76 percent in 1992. Those with a disability also experienced a decline in participation from 52 percent in 1970 to 33 percent in 1992. Thus, while participation for men without a disability remained relatively constant, except for a decline for the oldest age group, participation for men with disabilities declined significantly in all age groups.

The general trend for women, both with and without disabilities, is one of increasing labor force participation over time (Exhibit **II.B.3**). The largest percentage increases in participation were experienced by women in the 18-44 age group. Labor force participation of women with disabilities in this age group increased by 17 percentage points--from 34 percent in 1970 to 51 percent in 1992; but this increase was somewhat smaller than the 22 percentage point increase for women without disabilities, which rose from 49 percent to 71 percent. For women with disabilities in the 45-54 age group, the trend in labor force participation were similar to their counterparts in the 18-44 age group, although both the rates of participation and increases over time were somewhat smaller. Among women aged 55-64, both those with and without disabilities experienced only very small increases in labor force participation from 1970 to 1992.

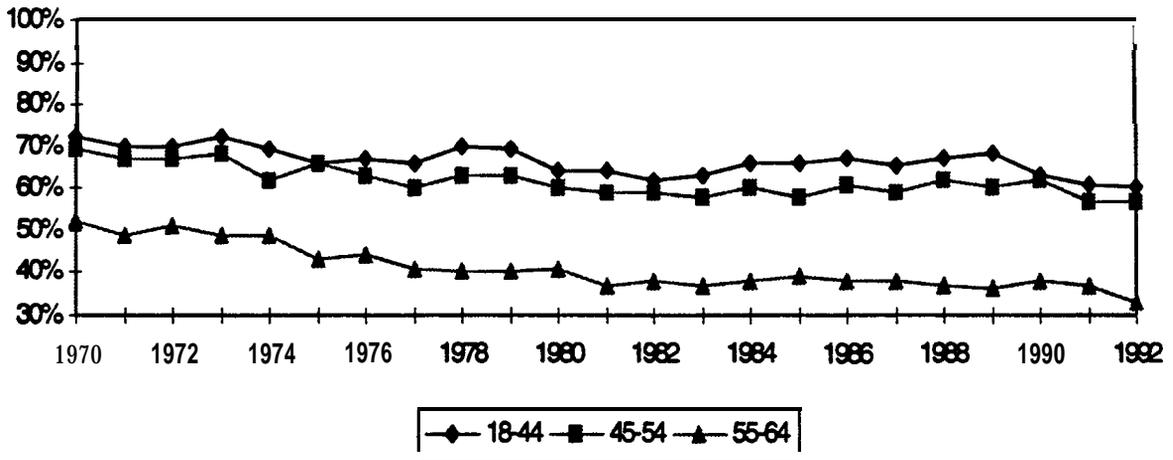
Exhibit II.B.2

Labor Force Participation of Men
With and Without Disabilities, 1970-1992

a. Without Disabilities



b. With Disabilities

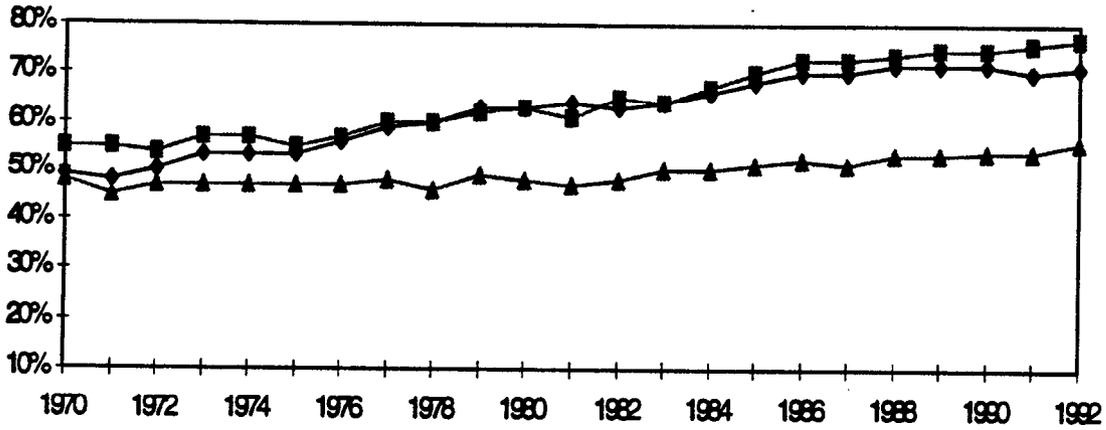


Source: Yelin and Katz (1994a) and personal correspondence with E. Yelin.

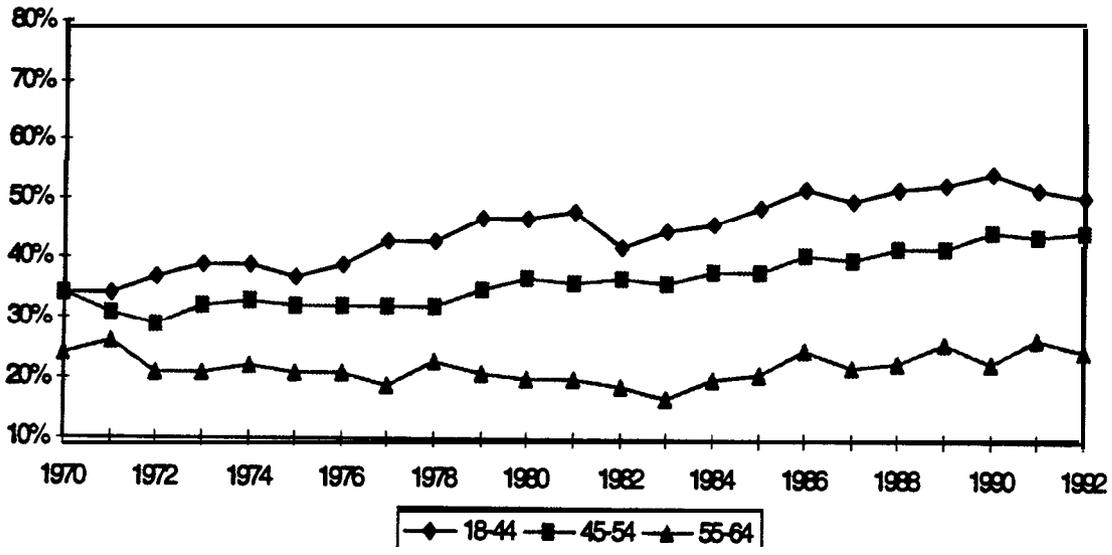
Exhibit II.B.3

Labor Force Participation of Women With and Without Disabilities, 1970-1992

a. Without Disabilities



b. With Disabilities



Source: Yelin and Katz (1994a) and personal correspondence with E. Yelin.

Yelin and Katz found that the overall labor force participation of persons with disabilities has increased slightly over time; however, looking at the overall trend masks differences that exist between age and gender subgroups of the population. Men with disabilities have experienced the largest percentage reductions in labor force participation over the 1970 to 1992 time period, with those aged 55 to 64 experiencing 'the greatest decline. In contrast, women, both with and without disabilities, have experienced large increases in labor force participation, mainly due to increases among women under the age of 55.

In a related study, Yelin and Katz (1994b) use CPS data to analyze the labor market profiles of persons with and without disabilities over the 1961 to 1993 time period. Among those in the labor force, the authors examine trends in full-time and part-time work and average hours worked per week for persons with and without disabilities. They find that among workers with disabilities, full-time employment has declined and part-time work has increased since 1961.

Although labor force participation increased by eight percentage points from 1981 to 1990 for persons with disabilities, for those in the labor force, the percentage engaged in full-time employment declined by nearly six percentage points (from 72 percent to 66 percent). Among labor force participants without disabilities, the rate of full-time employment remained relatively constant (approximately 83 percent). Workers with disabilities showed a very large increase in the proportion who reported they were working part-time because of economic reasons (reasons other than by choice). From 1981 to 1990 the percentage working part-time due to economic reasons rose from 6.3 percent to 9.7 percent. This represents a 54 percent increase, more than double the rate of increase among workers without disabilities. The percentage of those working part-time by choice also increased substantially among workers with disabilities--a 17.4 percent increase over the 1981 to 1990 period. In contrast, workers without disabilities showed a 3.2 percent decrease in the percentage working part-time by choice over the same period. The relative increase in part-time work among those with disabilities is reflected in the slight decrease in average hours worked per week from 37.2 in 1981 to 36.4 in 1990 (a 2.2 percent decline). Workers without disabilities experienced an increase in average hours worked from 40.8 to 41.3 (a 1.2 percent increase) over the period.

2. Trends in Earnings

Bennefield and McNeil (1989) provide descriptive information on the average earnings of workers with disabilities over the 1980 to 1987 time period and compare the earnings of workers with and without disabilities (Exhibit II.B.4). Looking first at persons who work full-time, the aggregate data show that over the 1980 to 1987 time period, average real earnings for men with disabilities declined slightly while average earnings for women with disabilities increased. For both men and women **with** disabilities who work full-time, however, the disparity between their earnings and the earnings of full-time workers without disabilities increased over the 1980 to 1987 period. The ratio of their earnings to the earnings of those without disabilities fell from **.91** to **.81** for men and from **.88** to **.84** for women.

A similar trend is apparent when part-time workers are included. Real (i.e., inflation adjusted) earnings of all male workers with disabilities declined from an average of \$22,665 in 1980 to \$20,258 in 1987. For female workers with disabilities, real average earnings increased from \$9,612 to \$10,556 in 1987.⁶ The earnings ratio fell from **.77** to **.64** among men and **.69** to **.62** among women. A variety of factors could explain these trends, but we have not found an analysis of them.

The aggregate descriptive data reported by Bennefield and McNeil paint a picture of the overall differences in earnings between workers with and without disabilities, but these differences may be due, in part, to differences in characteristics other than health status that affect earnings, such as age, education, or occupation. Studies of the impact of poor health on earnings, controlling for these characteristics, are reviewed in section C of this chapter.

⁶ Dollar figures expressed in 1994 dollars.

Exhibit II.B.4

Real Earnings of Persons with Disabilities and the Ratio of their Earnings to the Earnings of Persons without Disabilities, 1989-I 987

	1980	1981	1982	1983	1984	1985	1986	1987
Full Time, Year Round Workers with Disabilities								
Real Earnings (1994 dollars)								
Men	\$ 33,793	\$ 34,400	\$ 32,702	\$ 33,219	\$ 33,867	\$ 34,426	\$ 34,334	\$ 31,634
Women	\$ 19,041	\$ 19,556	\$ 18,882	\$ 19,455	\$ 20,599	\$ 20,407	\$ 20,702	\$ 20,648
Ratio of Earnings								
Men	0.91	0.95	0.89	0.90	0.91	0.91	0.86	0.81
Women	0.88	0.92	0.86	0.86	0.90	0.87	0.85	0.84
All Workers with Disabilities								
Real Earnings (1994 dollars)								
Men	\$ 22,665	\$ 22,838	\$ 20,922	\$ 21,678	\$ 21,407	\$ 22,589	\$ 21,379	\$ 20,258
Women	\$ 9,612	\$ 9,538	\$ 9,695	\$ 9,917	\$ 10,597	\$ 10,291	\$ 11,065	\$ 10,556
Ratio of Earnings								
Men	0.77	0.79	0.74	0.76	0.73	0.75	0.68	0.64
Women	0.69,	0.69	0.68	0.66	0.70	0.65	0.67	0.62

Source: Bennefield and McNeil (1989) and Lewin-VHI calculations.

3. Characteristics of Persons with and without Disabilities

Below, we present information on the characteristics of working-age persons with disabilities compared to their non-disabled counterparts. We first present information on all working-age persons, then focus specifically on persons participating in the labor force.

a. Characteristics of Working-Age Persons with and without Disabilities

Data from the 1990 CPS indicate that working-age persons with disabilities are more likely to be older, non-white, and have lower levels of education than persons without disabilities in the general population (Exhibit **II.B.5**). There are apparent differences when one compares the characteristics of those with severe and non-severe work limitations? Those with non-severe limitations are nearly equally likely to be any age category between 25 and 64, while the proportion of those with severe limitations increases sharply with age. Persons with severe limitations are about twice as likely to be black and about twice as likely to have less than a high school education as persons with no limitations or with non-severe limitations. Only 5.2 percent of those with severe limitations have a college degree while 14.4 and 21.1 percent of those with non-severe and no limitation have college degrees, respectively.

Examination of the specific health conditions that cause limitation in activity shows that back and spine problems are the most prevalent, affecting nearly one in five working-age persons who report a limitation (Exhibit **II.B.6**). After back problems, arthritis (13.1 percent), heart and circulatory (7.6 percent), and respiratory problems (5.6 percent) are the most commonly reported conditions causing limitation.

⁷ Work limitation is defined as a limitation in work due to chronic illness or impairment. Severe work limitation is not working at all due to impairment or indicated by receipt of Medicare or SSI.

Exhibit II.B.5

**Selected Characteristics of Persons Aged 16 to 64
by Work Limitation Status*, 1990**

		No Work Limitation	With Work Limitation	With Severe Work Limitation
Male		48.6%	51.9%	50.3%
Female		51.4%	48.1%	49.6%
Age				
	16-24	21.3%	9.0%	7.4%
	25-34	28.1%	20.2%	15.0%
	35-44	23.7%	23.2%	18.3%
	45-54	15.5%	20.6%	21.2%
	55-64	11.5%	27.0%	38.1%
Race				
	White	85.0%	86.3%	74.2%
	Black	11.3%	11.4%	23.0%
	Hispanic	8.4%	5.7%	9.5%
Education				
	Less than High School	19.9%	25.2%	49.6%
	High School Graduate	38.4%	41.8%	34.9%
	Some College	20.6%	18.6%	10.3%
	College Graduate	21.1%	14.4%	5.2%
Total (1,000s)		143,808	6,267	7,883

*Work limitation is defined as a limitation in work due to chronic illness or impairment. Severe work limitation is not working at all due to impairment or indicated by receipt of Medicare or SSI.

Source: NIDRR (1992) based on data from the CPS.

Exhibit II.B.6

Ten Most Frequently Reported Conditions as Cause of Physical, ADL, or IADL Limitations Among Persons Aged 15 to 64 Reporting a Limitation, 1991-1992

Health Condition	Percent Reporting Condition as Reason for Limitation
Back or Spine Problems	19.0
Arthritis or Rheumatism	13.1
Heart and Circulatory Problems	7.6
Lung or Respiratory Problems	7.0
Deformity of Foot, Leg, Arm, or Hand	5.6
High Blood Pressure	4.6
Diabetes	3.7
Mental or Emotional Problem	3.1
Blindness or Vision Problems	2.4
Mental Retardation	2.3

Source: McNeil (1993) based on data from the SIPP.

Labor force participation and income information show that persons with severe and non-severe limitations differ substantially from each other and from those with no limitations (Exhibit II.B.7). Persons **with** severe limitations are highly unlikely to be employed, are very likely to be participating in public income support programs, and experience an extremely high rate of poverty (33.5 percent). Over three-quarters of persons with non-severe limitations worked in the previous year, but most worked irregularly or part-time. The rate of poverty among those with non-severe limitations is about half that of those with severe limitations, but still considerably greater than the rate of poverty among working-age persons with no limitations (17.5 percent compared to 9.0 percent).

Exhibit II.B.7

Work Limitation*, Work Status, and Income, 1989 and 1999

	No Work Limitation	With Work Limitation	With Severe Work Limitation
Labor Force Status, 1990			
In Labor Force	79.9%	64.8%	12.3%
Employed	75.7%	57.6%	9.6%
Unemployed	4.2%	7.2%	2.7%
Not in Labor Force	20.1%	35.3%	87.7%
Work Experience, 1989			
Worked Durina Year	04.2%	76.3%	14.7%
Year-round, full-time	53.3%	29.6%	3.3%
Irregularly/part-time	30.9%	46.4%	11.4%
Did Not Work	15.8%	23.7%	85.2%
Mean income, 1989	\$19,851	\$16,484	\$7,012
Ratio of Income to Poverty, 1989			
under 1.00	9.0%	17.5%	33.5%
1.00 to 1.24	3.1%	4.3%	0.0%
1.25 to 1.49	3.4%	4.2%	7.2%
1.50 to 1.99	7.9%	9.8%	11.7%
2.00 and above	77.2%	64.5%	30.0%
Benefits, 1989			
(Social Security	2.7%	10.3%	42.4%
SSI	-	-	20.7%
Food Stamps	5.4%	11.7%	24.7%
Public Housing	1.4%	2.7%	5.9%
Subsidized Housing	0.9%	1.5%	4.4%

*Work Limitation is defined as a limitation in work due to chronic illness or impairment. Severe work limitation is not working at all due to impairment or indicated by receipt of Medicare or SSI.

Source: NIDRR (1992) based on data from the CPS.

b. -- -Characteristics of Workers with and without Disabilities

A comprehensive analysis of the labor force participation of persons with disabilities was done by **Mathematica** Policy Research (1990) using data from the 1984 Survey of Income and Program Participation (SIPP). To our knowledge, no similarly comprehensive analyses of disabled persons in the labor force have been conducted using data from more recent waves

of the **SIPP**. Below, we present some of the findings from the **Mathematica** study, as well as other studies that provide information on the characteristics of workers with disabilities.’

The age, gender, race, and ethnic composition of workers with substantial limitations in functioning differs significantly from those of workers without severe disabilities (Exhibit **II.B.8**).⁸ Workers with severe disabilities are, on the average, ten years older and have fewer years of education than workers without severe disabilities. A relatively higher percentage of these workers are female and black and/or Hispanic.

Exhibit II.B.8

**Demographic Characteristics of Employed Persons
Aged 18 to 84, by Disability Status, 1984**

	Employed Persons Reporting Substantial Limitations in Functioning	Employed Persons Reporting No Substantial Limitations in Functioning
Average Age	46.2	36.4
Percentage Female	51.8	43.5
Percentage Black and/or Hispanic	16.9	14.4
Average Years of Education	11.2	12.9

Source: **Mathematica** Policy Research (1990) based on data from the SIPP.

The labor force experience of persons with severe disabilities also differs substantially from that of persons without severe disabilities (Exhibit II.B.9). Persons with severe disabilities participate in the labor force at about half the rate of those without disabilities. Persons with severe disabilities who do participate in the labor force participate to a greater extent in part time employment and experience substantially higher unemployment rates than the rest of the

⁸ The **SIPP** reports five levels of functional limitations, based on severity: (1) no limitations in functioning, (2) difficulty in only one function, (3) difficulty in **two** or more functions, (4) inability in one or more functions, (5) need for assistance with activities of daily living (ADL) or instrumental activity of daily living (IADL). Persons reporting functional limitations in the three latter categories are referred to in this section as persons with “severe disabilities.”

⁹ Persons of Hispanic origin can be of any race.

population. Labor force participation decreases and unemployment increases with the severity of disability: persons with difficulty in only one function experience significantly lower unemployment and higher labor force participation rates than persons with more substantial functional limitations (**Mathematica** Policy Research, 1990).

The employment rate for working age persons with disabilities is substantially lower for older workers than for younger workers. Among workers with severe disabilities, more than 50 percent of men and 30 percent of women ages 18 to 49 are employed; of those 60 to 64 years old, however, only about 35 percent of men and 24 percent of women are gainfully employed.

Exhibit II.B.9

**Labor Force Characteristics of Persons
Aged 18 to 84, by Disability Status, 1984**

	Persons Reporting Substantial Limitations In Functioning	Persons Reporting No Substantial Limitations In Functioning
Percent of Total Population	8.1	91.9
Labor Force Participation Rate	39.1	79.3
Unemployment Rate	12.0	7.0
Employment as % of Population	34.4	73.7
Percentage Working Part-time	23.4	17.7
Employment Rates		
by age/gender:		
Males		
18-49	51.6	85.3
50-64	35.4	79.5
Females		
18-49	31.7	66.0
50-64	23.7	53.6
by education:		
Less than High School	25.6	60.2
High School	40.7	73.9
More than High School	49.8	80.1

Source: **Mathematica** Policy Research (1999) based on data from the **SIPP**.

Education is positively related to the employment rate for persons with severe disabilities. While slightly more than a quarter of those with less than high school education are employed, nearly half of those with education beyond high school are employed.

Workers with substantial functional limitations are more heavily concentrated in service and craft and operative occupations than are workers without limitations (Exhibit **II.B.10**). In addition, a higher fraction of those with substantial limitations are self-employed. The percentage of persons in managerial and professional and sales and

Exhibit II.B.10

**Occupational Distribution of Employed Persons
Aged 18 to 84, by Disability Status, 1984**

	Employed Persons Reporting Substantial Limitations in Functioning	Employed Persons Reporting No Substantial Limitations in Functioning
Manager and Professional	11.6%	20.5%
Sales and Technical	9.0%	12.3%
Administrative Support	14.3%	16.0%
Service	17.0%	11.7%
Craft and Operative	31.9%	27.0%
Self Employed	14.3%	10.2%
Other	2.0%	2.3%

Source: Mathematics Policy Research (1990) based on data from the SIPP.

technical occupations is smaller for persons with functional limitations than for those without limitations. These patterns of occupational distribution also reflect the demographic composition of persons with disabilities. Persons in managerial and professional positions, for example, generally have more education than the overall population. Thus, the finding that the percentage of persons in managerial and professional occupations is smaller among persons with substantial limitations in functioning is consistent with the finding that these persons average fewer years of education than those without limitations.

The earnings of workers with severe disabilities are substantially lower than the earnings of other workers (Exhibit II.B.11). The presence of a work disability correlates negatively with earnings.” The ratio of mean earnings by workers with severe disabilities to that for workers without severe disabilities is greater for year round, full-time workers than for all workers.”

¹⁰ The CPS defines an individual with a work disability as one who is limited in the amount or kind of work that he/she can perform due to the presence of a health condition.

¹¹ Additional discussion of earnings appears in part C of Section III.

Exhibit II.B.11

Mean Earnings of Civilian Workers Ages 16 to 64, by Work Disability Status, 1967

	With a Work Disability	Without a Work Disability	Ratio
Males			
All Workers	\$15,497	\$24,095	.64
Year Round, Full-time	\$24,200	\$29,994	.81
Females			
All Workers	\$8,075	\$13,000	.62
Year Round, Full-time	\$15,796	\$18,894	.84

Source: Bennefield and McNeil (1989) based on data from the CPS.

4. A Longitudinal Perspective

The information on the characteristics of workers with disabilities presented in the previous section is derived from cross-sectional surveys. Cross-sectional **surveys** provide a "point in time" view of the characteristics of the disabled population, however, at any given point in time, a sample of the population of persons with disabilities will over-represent those with severe, long-term disabling conditions. Therefore, information about the prevalent cases of disability obtained from cross-sectional surveys may not necessarily correspond to that of incident or new cases occurring over a period of time. For this reason, it is important to also study disability issues from a longitudinal perspective.

In a recent study, Burkhauser and Daly use data from the 1970 to 1989 waves of the Panel Survey of Income Dynamics (PSID), to trace out the likelihood of several events following the onset of disability, including the likelihood that those with disabilities will stop working, return to work, fall into poverty, and recover from their disability (Burkhauser and Daly, 1994b).¹² Their findings indicate that older persons are less likely to return to work, less likely to recover from disability, and equally likely to fall into poverty as younger individuals

¹² In this study, an individual is disabled if he/she reports that a physical or nervous condition limits the type or amount of work that he/she can do.

following the onset of disability (Exhibit II.B.12). A large percentage return to work, but the percent falls rapidly with age: by five years after the onset of disability, 61 percent of those aged 25 to 50 have returned to work, while only 26 percent of those aged 51 to 61 have returned.

Exhibit II.B.12

Cumulative Occurrence of Events Following the Onset of Disability

Years Since Onset of Disability	Stop Working		Return to Work		Fall Into Poverty		Recover from Disability	
	25-50	51-61	25-50	51-61	25-50	51-61	25-50	51-61
1	15%	24%	28%	14%	8%	8%	na	na
2	26%	35%	46%	19%	13%	13%	2%	1%
3	32%	42%	52%	22%	17%	17%	4%	2%
4	38%	49%	58%	24%	20%	20%	13%	7%
5	44%	53%	61%	28%	22%	22%	13%	7%

Source: Burkhauser and Daly (1994b) based on data from the PSID, 1970 to 1989.

Also of interest are the characteristics of persons who remain in the labor force compared to those who leave following the onset of impairment. Daly and Bound (1994) analyze how workers respond to the onset of a health impairment using data from the 1991 Health and Retirement Survey. The authors study the employment responses of a sample of men and women aged 51 to 61 with health limitations who report that they became impaired during their **worklife** and were employed at the onset of the health limitation. They examine the determinants of staying **with** one's **employer**, changing employers, or leaving the labor force following the onset of **impairment**.¹³ Demographic characteristics, employer characteristics, and job demands prior to the onset of the impairment are used to predict the **worker's** response to the onset of the health limitation.

¹³ A **multinomial logit** model is used. Separate models were estimated for men and women.

Overall, about half the sample remained with their employer at the onset of impairment, 23 **percent** changed **employers**, and 27 percent left the labor force. **The** proportions did not differ significantly between men and women except that women were significantly more likely to leave the labor force than men (29.5 percent as **compared** to 24.5 percent). Their analysis shows that age, education, race (for women only), and employer characteristics are significant predictors of employment behavior following the onset of a health impairment. The older the age of onset, the more likely workers will remain with their **employer** or leave the labor force **rather** than change employers. Those with a high school education are significantly less likely to stop working than those without at least a high school education. Among women, those with a college education are more likely to change employers than those without a high school education. **Race** was only important among women -- black females are significantly less **likely** to change employers and more **likely to leave** the labor force following onset of impairment than their white counterparts.

5. **Disability and Labor Force Participation in Other Countries**"

It is clear that the work choices made by people with disabilities are **related** to the social and policy environment. International comparisons provide insight into the effect of varying social, economic, and policy conditions. **Here**, we briefly discuss the labor force participation and systems of support for working-age persons with disabilities in other industrialized countries.

a. **Comparative Labor Force Participation**

We can locate **little** population-based cross-national **research** on the labor force participation rates of persons with disabilities which allow for an assessment of the comparative effect of labor force policies. Because of the lack of appropriate data, most **cross-national** comparisons tie the definition of disability to the receipt of disability benefits. An **exception** is the study by Daly (1994) that examines comparative national survey data from the U.S. Panel Study of Income Dynamics and the German Socio-Economic Panel. Findings based on that study are **reported** below.

¹⁴ Kathleen Bond contributed greatly to this section.

Both the United States and Germany experienced similar overall economic trends (economic growth and unemployment) during the 1980s. In the United States, in 1988, the labor force participation rate for men aged 25-59 with disabilities was 71.8 percent, compared to 97.9 percent for men the same age without disability; only 45 percent of men with disabilities worked full-time, compared to 84.2 percent of men without disabilities. In Germany, labor force participation rates were slightly lower (87.8 percent for those with disabilities and 95.0 percent for those without disabilities), but a much higher share of working men with disabilities work full time (58.2 percent) even though a smaller percent of those without disabilities do (81.4 percent).

The much higher rate of full-time work among disabled men in Germany suggests that German policies are enhancing labor force participation for those with disabilities. Earnings data show a similar difference. According to Daly's analysis, the average working-age male in the United States earns only about 49 percent as much as his non-disabled counterpart, whereas the corresponding figure for Germany is 85 percent.

The proportion of working-age men with disabilities who are not in the labor force is slightly higher in Germany than in the United States (32.2 percent versus 28.2 percent in **1988**), and non-working German men with disabilities are more likely than their U.S. counterparts to receive some type of government assistance (95 percent compared to 85 percent.)

b. Receipt of Disability Transfer Benefits

Aatts and De Jong (1994) provide additional comparative data on the receipt of disability transfers per thousand workers for the United States, Germany, Sweden, and the Netherlands, in the 1970s and 1980s. The transfer rates increased substantially in all four countries in the 1970s with the largest increases in the United States and the Netherlands. In the **1980s**, all countries had slower growth rates with the greatest slowdowns occurring in the United States and the Netherlands. In 1990, the United States had the lowest disability transfer rate of the four countries, with 43 recipients per thousand workers. The German rate was 28 percent higher, the Swedish rate was 81 percent higher, and the rate in the Netherlands was 253 percent higher.

Within age groups, the United States had the lowest rates for those age 45 to 59 and **60 to 64, but** the German rate was by far the lowest for those age 15 - 44: just five per thousand compared to 23 per thousand for the United States. The authors attribute the low German rate for young workers to both the rehabilitation focus of German policy and relatively low income replacement rates for young transfer recipients..

Zeitler (1994) notes that differences in the design of disability transfer programs -- including definition of disability, population covered, eligibility requirements, and linkage to other social insurance programs and to provision of rehabilitation -- are just one source of differences in transfer rates across countries. Macroeconomic factors (the business cycle and the industrial structure) as well as basic demographic factors such as population aging also play a role (macroeconomic factors are discussed further later in the chapter). Hence, inferences from international comparisons of transfer rates must be made with great care.

c. **Employment Support Programs in Other Countries**

Other Industrialized countries also are concerned with enhancing opportunities for persons with disabilities to join or remain in the labor force. The countries of western Europe in particular have a variety of incentives and supports to aid the labor force participation of workers with disabilities. Among the types of programs supported are a disability allowances given regardless of employment status, hiring quotas, vocational rehabilitation, constant attendance allowances, wage subsidies, job placement services, sheltered employment, and universal health insurance.

d. **Approaches to Vocational Rehabilitation**

Countries have different approaches to vocational rehabilitation (**VR**) and different relationships between VR systems and disability benefits systems. Belgium and the United States are examples of countries in which the VR and disability support programs are **separate--workers must** apply for rehabilitation services and must meet the requirements of the agency before service can begin. In the Netherlands and Israel, rehabilitation specialists are members of the disability assessment team. Refusal to accept rehabilitation may result in a lessening of benefits. In Israel, the rehabilitation worker serves as a case manager for services; in Holland, the rehabilitation specialist has detailed information about available jobs

which the worker can perform given residual functional abilities and is able to contact the former employer to try to get the worker back on the job. In Germany also, the worker receiving social insurance benefits must apply for rehabilitation services.

One study suggests the following four “keys to **success**” of national rehabilitation policy (Aarts and De Jong, 1994):

- early intervention, before permanent income support is provided;
- strong financial incentives to workers to return to work (e.g., low replacement rates for younger workers);
- financial incentives for employers to support rehabilitation (e.g., experience rated disability insurance premiums, wage subsidies for employing disabled workers, and fines for not meeting employment quotas for disabled workers); and
- strong government oversight and/or financial incentives to maintain the integrity and effectiveness of rehabilitation programs.

e. **Universal Health Insurance**

Most of the western European countries also have comprehensive universal health insurance which removes the disincentive for hiring workers with disabilities related to high health insurance costs. In addition to physician visits and hospital coverage, programs in Germany, France, United Kingdom, Netherlands, and Sweden provide persons with disabilities with whatever prosthetic or **orthotic** appliances, medical equipment, or adaptive devices they need to improve their lives and promote independence regardless of ability to pay or to work (Zeitzer, 1994).

f. **Examples of Broad Approaches**

France: France has a six percent hiring quota for subject employers. Firms are given extra credit for hiring the severely disabled. In lieu of meeting the quota, **firms** may enter into subcontracts with enterprises in the protected work sector, make agreements with unions that have programs for people with disabilities, or contribute to a development fund devoted to measures for placement of handicapped workers in jobs. France also has the following provisions although they have not been widely use by firms: funds for adjustment or adaptation of machines or tools, adjustment of the work station, arranging access to the work

place so as to accommodate persons with motor handicaps (for example, construction of ramps or adjusting elevator and bathroom access), hiring an ergonomist, funds additional supervision costs, aid to employers in the form of a contract for retraining disabled workers. The source of the subsidy is Social Security funds (Berkowitz, 1990).

Germany: The Federal Republic of Germany has a ‘rehabilitation before pension’ policy of attempting to prevent, detect early, and intervene early in the work-related disability process. Special return-to-work programs provide younger workers with two years of retraining program in emerging industry vocations or ‘stepwise reintegration’ to original employment. There is also a program to educate the medical community and workers on the reintegration of persons with disabilities into the labor force. Like France, Germany has a hiring quota for persons with disabilities--about six percent of the workforce. Quotas are often not filled, and firms are fined for noncompliance. Fines are used to help integrate people with severe disabilities into the workforce or to fund special work programs. In effect, the fines provide a financial incentive to employers for employing people with disabilities. German VR programs are funded through a complex set of sources.

c. The **Supply Side of the Market**

For persons with disabilities, the decision of whether or not to work, and how many hours to work, is influenced by a variety of factors. Economic studies of the labor market behavior of persons with disabilities have focused primarily on the financial incentives and disincentives to work. As discussed in Chapter 1, financial factors are not the only components in the labor supply decision of the disabled individual. Issues related to constraints on time may also be important: time for work reduced because of an increased need for time devoted to personal care activities, reduced life expectancy, and preferences regarding how to spend a more limited time endowment that do not favor work activities.

Because the economics literature has tended to focus on the financial aspects of the work decision, the discussion in this section reflects that focus. We certainly do not address all issues that may be associated with the labor supply decision, but rather, focus on those most likely to be addressed by public policy. Additional factors that may affect the labor supply decision of persons with disabilities, such as training and rehabilitation, or the use of personal

assistance services and assistive technology, are discussed in subsequent chapters of this report.

The discussion in this section is organized as follows: First, we describe the major public and private income support programs for people **with** disabilities, paying particular attention to the work incentives and disincentives of each. Next, we review the literature that examines the impact of these programs on labor force participation. **We** then examine the importance of health insurance coverage for persons with disabilities and the labor supply effects of health insurance coverage that is contingent upon public program participation. We conclude this section with a review of a subset of the studies that have analyzed the impact of impairment on earnings.

1. **Income Support for Persons with Disabilities**

Here, we describe the potential work incentives and disincentives associated with each of the programs listed below. With the exception of Aid to Families with Dependent Children (AFDC) and general assistance (GA), all are designed to provide support to persons with disabilities of some sort. AFDC and GA are included because many recipients do have disabilities. Although not a program per se, we have included a discussion of private disability insurance, as it represents a potentially important source of income support for persons with disabilities.

The programs examined include:

- Social Security Disability Insurance (DI);
- Supplemental Security Income (SSI);
- Workers' Compensation (WC);
- Veterans' Disability Compensation (**VC**)
- Veterans' Disability Pensions (VP);
- Aid to Families **with** Dependent Children (AFDC);
- General Assistance (GA); and
- Private Disability Insurance (PDI).

a. Social Security Disability Insurance¹⁵

The Social Security Disability Insurance (DI) program provides benefits for qualified disabled workers under the age of 65, and their dependents. The DI program provides insurance to workers against the loss of labor earnings in the event of disability. Workers and their employers make contributions, based on the level of the worker's earnings, in the form of the Old-Age, Survivors, and Disability Insurance (OASDI) wage tax. When the insured event occurs (disability), the worker is compensated for losses by means of cash benefits that are based on the level of his or her average lifetime earnings from DI covered employment since the age of 21. The formula for computing DI benefits is progressive, resulting in higher wage replacement rates for low wage earners than for high wage earners." The average monthly DI benefit was \$642 in 1993. In addition to cash benefits, DI beneficiaries become eligible for Medicare after two years in the program.

Under DI, a person is found to be disabled if he or she is unable to engage in substantial gainful activity (SGA) because of physical or mental impairment. An individual who is earning \$506 or more per month is considered to be engaged in SGA. For an impairment to be defined as disabling, it must be medically determinable and expected to last at least twelve months or result in death. A DI applicant must have been earning below the SGA threshold for at least five consecutive months before becoming eligible for DI benefits. In addition to the work activity and impairment criteria, an individual must have a sufficient history of work in DI covered employment to qualify for benefits."

The fact that eligibility for DI is contingent upon the inability to work creates work disincentives for individuals who wish to become eligible for DI and discourages efforts to return to work among those already receiving DI. Although the strict test of disability, the five

¹⁵ Sources for this section include Social Security Administration (1994), Committee on Ways and Means (1994) and National Academy of Social Insurance (1994).

¹⁶ The wage replacement rate is equal to the amount of benefit income divided by the worker's earnings before disability.

¹⁷ The individual must have worked about a fourth of the time since age 21 in covered employment, up until the year of disability. In addition, the individual must have a recent history of work in DI covered employment-work in at least five of the ten years preceding disability (or 50 percent of the time since age 21 if the individual is under the age of 31). In 1994, 85 percent of males and 88 percent of females aged 25-64 had sufficient work histories to be insured under DI (Social Security Administration, 1994).

month waiting **period** before application for benefits, and the low SGA level serve to reduce the incentives for individuals to apply for benefits, once an individual has become eligible for benefits, these same factors may discourage him/her from attempts to return to the labor force. The DI program has, however, incorporated provisions designed to encourage beneficiaries to go back to work. These include: a trial work period (**TWP**) where DI benefits are not affected by earnings for nine months during any five-year period; a disregard for impairment related work expenses when determining whether earnings exceed the SGA; an extended period of eligibility for DI for 36 months after the TWP where benefits may be received in any month that earnings do not exceed the SGA; continuation of Medicare coverage for at least 39 months following the **TWP**, and beyond if the **former** beneficiary chooses to pay a premium for it; applicants are referred to State vocational rehabilitation services; and benefits may be withheld if rehabilitation services are refused without good cause.

b. **Supplemental Security Income¹⁸**

The federal Supplemental Security Income (SSI) program is a means-tested program that provides benefits to disabled persons and those age 65 or over whose Social Security benefits plus other sources of “countable” income fall below a defined minimum. To be eligible for SSI, individuals must be 65 or older, legally blind, or disabled according to the same definition of disability used under the DI program. Individuals must not have countable income exceeding the benefit level, nor countable resources that exceed \$2,000 (\$3,000 for couples). In 1994, the maximum monthly SSI benefit levels were \$446 for individuals and \$669 for couples. These amounts are adjusted annually for inflation. SSI benefits are reduced dollar for dollar by income from most other sources. Income from earnings, however, only reduce SSI benefits by **\$.50** for every dollar of earnings in excess of \$65 per month.” Most states supplement the basic, federally defined benefit amounts; only seven states have chosen not to provide supplements.

¹⁸ This section is based on discussions of the SSI program found in National Academy of Social Insurance (1994) and Committee on Ways and Means (1994).

¹⁹ The first \$65 of earnings is not countable.

Most SSI beneficiaries also receive Medicaid coverage. Coverage is automatic in 31 states; seven States require **SSI** beneficiaries to file a Medicaid application as a formality; and 12 states require SSI beneficiaries to meet even stricter income and asset standards to obtain Medicaid benefits.

As with **DI**, the structure of SSI benefits discourages work. Because the definition of “disability” used for program eligibility requires that the individual not engage in SGA, strong disincentives for work exist. Like the DI program, the SSI program has incorporated provisions designed to encourage recipients to work. These include: the special treatment of earnings in determining countable income (as described above); Section 1619 provisions that allow, under certain circumstances, the continuation of Medicaid coverage when earnings and other income become high enough to reduce benefits to zero and until income exceeds a substantially higher amount; a disregard for **impairment** related work expenses when determining initial eligibility and benefit amounts; the Plan for Achieving Self-Support (PASS) program that allows recipients to set aside resources to achieve approved job-related goals; and a program where property essential for self-support (PES) (tools or equipment, for example) is excluded from countable resources when determining eligibility for SSI. Further, in many states **low**-income individuals may obtain Medicaid benefits without having income and resources that are low enough to meet the SSI means test. An important difference between DI and SSI incentives is that under DI a beneficiary can earn up to the SGA with no loss of benefits, at which point all benefits are lost if the individual earns more, while under SSI the first dollar of earnings beyond a very small monthly amount reduces benefits by 50 cents.

c. Workers’ Compensation”

Workers’ compensation (WC) provides benefits to workers whose disabilities resulted from work-related injury or illness as well as to dependents of workers whose deaths resulted from such injury or illness. Each of the 50 States and the District of Columbia has its own WC program with state laws differing greatly in the extent of coverage, level of benefits, and the insurance method used to underwrite the risk of job injury. The laws established under WC

²⁰ Sources of information for this section include National Academy of Social Insurance (1994), US Department of Labor (1993), Social Security Administration (1994), and Nelson (1993).

require employers to compensate employees for medical costs and lost wages resulting from occupational injury or illness regardless of fault.

A combination of insurance companies, special state insurance funds, or self-insured employers provide WC benefits. In addition, some federal programs (such as the Black Lung benefit program) also provide WC benefits. Three-fourths of all compensatory claims for WC benefits and one-fourth of all cash benefits involve a temporary disability. Workers with temporary total disability are unable to work during their convalescence but are expected to recover and return to work. Most states pay temporary benefits for the duration of the disability as long as it improves with medical treatment. Workers with permanent total disabilities or disabilities that do not improve may, in most states, receive benefits for life or for the duration of the disability. Monthly benefits for temporary and permanent total disability are normally calculated as a share of the worker's average earnings at the time of the accident, most commonly two-thirds. All states place a maximum dollar limit on benefits and many place limits on the amount of time a benefit may be received or the total amount that may be paid for a given case.

WC benefits are also paid in the event of a permanent partial disability, which may or may not affect work ability. Benefits for permanent partial disability may be determined in a number of ways: impairment-based methods pay fixed amounts for specific injuries (the loss of a body part or loss of hearing, for example); wage loss methods base payments on the actual reduction in earnings experienced as a result of the partial impairment; and earnings capacity loss methods base benefits on the estimated impact of the impairment on the worker's future earnings stream, taking into account the age, education, and work experience of the individual. Permanent partial disability benefits are also subject to maximum limits and, in many cases, limits on the amount of time the benefit may be received.

Strong work disincentives may be associated with WC payments made for temporary and permanent total disability since benefits cease when the individual returns to work. Disincentives for work are also associated with permanent partial benefits whose levels are based on the demonstrated wage loss due to impairment. Workers may be eligible to receive WC and DI benefits at the same time; combined income benefits are capped at the minimum of 80 percent of the worker's prior earnings and the DI maximum family benefit.

d. Veterans Administration Programs²¹

Two types of cash benefits are available to veterans **with** disabilities through programs administered by the Department of Veterans' Affairs (DVA). These are the **Service-Connected Disability Compensation** program (hereafter referred to as Veterans' Compensation) and the Nonservice-Connected Disability Pension program (hereafter referred to as Veterans' Pensions).

The Veterans' Compensation program pays cash benefits to veterans for service-connected injuries and in that respect is similar to Workers' Compensation. A **service-connected** disability is defined as a loss of earnings capacity caused by disease or injury which **was** incurred or aggravated during military service. There are three types of benefits for service-connected disability: disability compensation, disability severance pay, and disability retirement pay. Eligibility for each of these types of benefits is restricted to those veterans discharged under other-than-dishonorable conditions, with a minimum length of service stipulation that varies depending on the period of service.

Disability compensation benefits, in most cases, are paid to the disabled veteran for the remainder of his or her life. The amount paid depends on the disability percentage as evaluated by the DVA. For example, in 1993 a 10 percent disability rating was associated with a monthly payment of \$87 and a 100 percent disability rating was associated with a payment of \$1,774. Additional benefits are paid for spouses and dependents if the individual's disability rating is at least 30 percent. Disability ratings are determined based on medical criteria only. Once the rating is established it is not **normally** subject to change; medical re-evaluation is seldom conducted and is done so only on a case by case basis. Subsequent work activity will not affect the disability rating, and disability compensation benefits remain unaffected by other sources of income.

Disability retirement **pay** is available to veterans with service-connected disabilities of at least a 30 percent rating who have had at least twenty years of military **service**.²² Benefits are

²¹ This section is based on information found in National Academy of Social Insurance (1994) and **Thomas** (1992).

²² Disability retirement benefits may also **be** received by those with at least eight years of service when certain criteria are met.

equal to 2.5 percent of the monthly basic pay multiplied by the number of years of active service, up to a maximum of **75** percent of basic pay. An individual may be eligible for both disability retirement and compensation benefits but must elect to receive either one or the other.

Disability severance pay is given to veterans with service-connected disabilities who are **not** eligible for disability retirement pay either **because** their disability rating **is** less than 30 percent or because their length of service is insufficient. Disability severance pay is a **lump-sum** equal to two times the monthly base and longevity pay multiplied by years of service, and may not exceed the amount of two year's basic pay.

The Veterans' Pension program is a means-tested program that is similar to SSI. Pensions are paid to veterans who are permanently and totally disabled due to **non-service-connected** disabilities, and to veterans aged 65 and older. These benefits are only available to low income veterans with honorable discharge status and who had some wartime experience. The maximum monthly benefit for an individual in 1993 was \$651. Additional payments are made for dependents and in cases where the individual requires regular aid and attendance.

Both veterans with service-connected disabilities and those receiving veterans pensions are given priority for free hospital care in the VA system. Free VA outpatient care is available to those with **service-connected** disabilities and to veterans receiving pensions whose incomes are below a certain level.

Since veterans' disability compensation is paid **regardless** of work activity, there are no disincentives to employment among beneficiaries. The same is true for permanent disability retirement and severance pay once it has been established that the individual is unable to report for duty due to disability. Veterans disability pension payments do discourage work, **however**, since veterans must meet a means test in order to be eligible for benefits.

e. Aid to Families with Dependent Children²³

Title **IV-A** of the 1935 Social Security Act established a cash grant program aiding needy children without fathers. Later renamed **Aid to Families with Dependent Children (AFDC)**, the program now provides cash benefits to children and certain other members of their households. Needy children remain eligible until age 18, or until age 19 in some states if the child is in enrolled in school.” Each state administers its own program subject to federal guidelines. The states define “need,” set their own benefit levels, and establish (within Federal restrictions) income and resource limits. Federal funds pay from 50 to 80 percent of the AFDC benefit costs in a State, and **50** percent of administrative costs. The average AFDC family benefit was \$373 in 1993. AFDC recipients are automatically eligible for Medicaid.

Although not specifically a support program for persons with disabilities, many AFDC participants have disabilities. Data from the 1990 **SIPP** show that 19 percent of women aged **15-45** on AFDC had a disability (Adler, 1993). That the proportion of AFDC recipients with disabilities is substantial is not surprising since AFDC is intended to provide assistance to low income households. Persons with disabilities are more than twice as likely as the general population to be in households with income below the poverty **line--24** percent versus 11.5 percent (**Mathematica** Policy Research, 1989).

Work disincentives associated with AFDC are not specific to persons with disabilities. The first dollar of earnings does not reduce benefits, but after an earnings disregard that varies by state, in most states benefits are reduced dollar for dollar by earnings. Federal law requires states to disregard the first \$120 of monthly earnings in the first year of receipt, and \$90 in subsequent years. There are also mandated disregards for child care and work-related expenses. Special state-level provisions in many states allow families to keep more of their earnings. In addition, the Family Support Act of 1988 established the Job Opportunities and Basic Skills (JOBS) training program for AFDC recipients. This program is intended to provide

²³ This section is based on information from Committee on Ways and Means (1994).

²⁴ Most children receiving AFDC benefits are part of single parent households, usually headed by women. A second group, ‘AFDC-Unemployed Parent,’ consists of two-parent families where the primary earner works fewer than one hundred hours per month.

education and training opportunities to AFDC recipients so that they may achieve welfare independence through employment.

In addition to provisions that encourage employment, many states have implemented welfare reform policies designed to limit the amount of time a recipient may participate in the AFDC program or require that they participate in training or employment programs in order to receive benefits. Persons with disabilities, however, are nearly always exempt from such requirements (see Chapter III).

f. General Assistance²⁵

General assistance (GA) is the generic term for state and local programs that provide benefits to needy persons. While it is difficult to generalize about GA, most programs are meant to **serve** populations not **served** by AFDC, SSI, or Medicaid -- typically couples and single adults without children. GA is also often provided as interim assistance while applications to other welfare programs are pending. Hence, GA programs are usually considered to be substitutes for other types of welfare benefits. GA benefits, however, tend to be less generous than benefits under either SSI or AFDC.

GA programs differ according to a variety of factors: eligibility requirements; types of benefits available; and the length of time benefits may be received. In addition, GA programs are subject to frequent policy changes. There are no federal standards and, because they rely on local and state funding, are highly sensitive to state and local budgetary pressures.

As with AFDC, most GA programs are not designed specifically to serve persons with disabilities, although data from the 1984 Disability Supplement to **SIPP** indicate that a large number of persons participating in cash welfare programs other than AFDC do have substantial disabilities. Of those participants, 12 percent reported a functional limitation that prevented them from working entirely and another **10** percent could not work full time or regularly (**Mathematica** Policy Research, 1990).

²⁵ This section is based on information contained in Lewin-ICF and James Bell Associates (1990).

Given their diversity, it is difficult to generalize about work incentives and disincentives that exist under GA programs. If a GA recipient has a disability, it is not uncommon for the individual to be encouraged or required to apply for assistance from DI or SSI. Likewise, if a recipient is able-bodied, participation in job search or training activities may be required for continuation of benefits under GA. The low benefit levels and strict income requirements common to GA programs suggest that only individuals with few alternative income opportunities would become dependent on GA for long-term assistance.

g. Private Disability Insurance²⁶

Short-term Disability Benefits: Short-term disability benefits provide benefits to individuals who are unable to work because of temporary illness or injury. Short-term benefits for temporary disability may take the form of sick leave benefits, state-mandated temporary disability insurance, or other employer provided temporary disability insurance benefits.

Sick leave is the most common form of short-term disability protection. About 50 percent of private sector employees are covered by some type of sick leave benefit. Benefits typically begin the first day of illness and replace 100 percent of the worker's earnings. Sick leave benefits usually only last for a few weeks.

Currently, five states (California, Hawaii, New Jersey, New York, and Rhode Island) mandate temporary disability insurance. In all but one case, these plans are financed via contributions from both the employer and the employee; only Rhode Island has no employer contribution. The plans themselves vary as to whether they are state administered plans, private plans, or an option for the firm to choose between the two. Benefits are typically 50 percent of prior earnings and are subject to minimum and maximum amounts. The maximum amount of time benefits may be received varies from 26 weeks in Hawaii to 52 weeks in California.

Aside from the five states that mandate short-term disability insurance, temporary disability insurance may be provided and, in part, financed by employers. Benefits under

²⁶ This section is based on the discussion of private disability insurance presented in National Academy of Social Insurance (1994) and information in Hay/Huggins Co. (1994).

these plans, like those in the states where coverage is mandatory, typically replace about 50 percent of the worker's earnings and usually last for up to 26 weeks.

Disincentives for work due to short-term disability benefits per se are likely to be minimal given the temporary nature of the benefits. However, to the extent that these benefits facilitate the transition from work to receipt of long-term disability benefits, incentives to leave the labor force will be intensified by the presence of short-term disability insurance. In particular, the five month waiting period before application for DI, intended to discourage those 'marginally disabled' from applying, will be less of a deterrent to those who are covered by short-term disability insurance.

Long-Term Disability Benefits: Private long-term disability insurance and disability pension plans provided by employers may supplement a disabled-worker's DI benefit. About 25 percent of private sector employees in the U.S. are covered by some type of private **long-term** disability insurance. Coverage is more common among white collar workers (47 percent) than among service or blue collar workers (26 and 13 percent, respectively) and among employees of medium and large size firms than among those in small firms.

The benefits paid under private long-term disability insurance plans are usually designed to replace a specified share of the worker's predisability earnings, most commonly from half to two-thirds. Benefits under private disability insurance plans are nearly always offset dollar for dollar by Social Security benefits. Thus, the private disability benefits bring the worker's income up to the level of the specified replacement rate, including any benefits the worker receives from DI. The integration of private disability insurance and DI benefits implies that private disability insurance will be relatively more important for high wage earners than low wage earners because replacement rates are higher for low wage earners. Benefits are normally paid as long as the individual meets the definition of disability stipulated by the plan. Often this initially requires that the worker be unable to perform his or her usual occupation and then, after a period, be unable to perform the duties for any occupation for which he or she may be qualified based on training and experience.

Private pension plans designed to provide retirement income may also provide income to workers who must retire early because of disability. Private pensions may be of two types: a defined benefit plan which uses a formula based on the worker's past earnings and years of



service to determine benefits in the event of retirement or disability; or a defined contribution plan where benefits are based on the accumulated value of contributions made to the plan by the worker and his or her employer. The disability retirement component of defined benefit plans often interacts with long-term disability insurance plans provided by the employer, with the disability insurance providing benefits until the worker reaches the age of normal or early retirement. About 35 percent of all private sector employees are covered by a defined benefit pension plan. Defined contribution plans do not have a disability insurance component but permit early withdrawal of pension income in the event of disability.

Work disincentives associated with long-term private disability insurance and pension plans are similar to those present for DI. The individual is only eligible for benefits if he/she can demonstrate an inability to perform his/her usual work activity. Incentives of high wage earners with private disability insurance are particularly affected because these benefits increase the earnings of replacement rate from a very low rate for DI alone to the much higher rate for the combined benefits. Benefits may be particularly attractive if the worker is threatened with job loss or significant pay cuts because they replace a high percentage of past earnings. It has recently been reported that many older physicians whose incomes are threatened by increased competition in the health care industry and expectations of health reform have filed claims for private disability benefits, many because of “mental and nervous conditions” (Scism, 1994).

2. **The Effect of Benefit Programs on the Labor Supply of Persons with Disabilities**

Studies on the effects of the work disincentives associated with income support programs have focused primarily on the analysis of three programs: Social Security Disability Insurance (DI), Aid to Families with Dependent Children (AFDC), and Workers' Compensation (WC). In this section, we review existing studies of the effects of the DI and WC programs on labor supply. Studies that examine the effect of the AFDC program on labor supply are reviewed in Chapter 3 of this report.

a. DI Studies

A substantial number of previous researchers have analyzed whether the presence and generosity of **DI** and other benefits relative to job opportunities can explain long term declines in the labor force participation rates of older men. This research was instigated by the observation that declines in labor force participation over a long period are synchronous with increases in **DI** participation (Exhibit II.C.1). We describe three separate strands of research on this topic: (1) individual, cross-sectional studies; (2) aggregate time-series studies; and (3) a “natural experiment” approach adopted by Bound (1989).

Exhibit II.C.1

**Percentage of Men Age 45-84 in Labor Force or Receiving DI Benefits
1955-1 985**

Year	45-54		55-64	
	% In Labor Force	% Receiving DI	% In Labor Force	% Receiving DI
1955	96.5	0.0	87.9	0.0
1960	95.7	0.8	86.8	3.5
1965	95.6	1.8	84.6	5.3
1970	94.3	2.5	83.0	7.1
1975	92.1	3.9	75.6	10.4
1980	91.2	4.2	72.1	11.3
1985	92.0	4.0	68.8	10.5
Change 1955-85	-4.5	4.0	-19.1	10.5

Source: Bound (1989).

Cross-sectional Studies: Many researchers have used individual cross-sectional data, attempting to measure the effect of the size of DI and related benefits on the probability of applying for or being awarded benefits. As we indicate below, the conclusions reached by Parsons (1980) differ sharply from those of later researchers (**Haveman** and Wolfe, 1984)(**Haveman**, Wolfe, and **Warlick**, 1987)(**Kreider**, 1994). In each case, we highlight the author’s assumptions, empirical estimates, and potential methodological shortcomings.

Some of the earliest research on this topic suggests that male labor force participation rates are quite sensitive to changes in the generosity of DI benefits. Typically, this research

specified labor force participation as a function of individual characteristics and a measure of the **DI** replacement rate. Using data from **the** 1969 National Longitudinal Survey to estimate a cross-section equation of this type, Parsons (1980) measured an elasticity of labor force non-participation with respect to **the** DI replacement rate for men age 48 to **62**.²⁷ He found that a one percent increase in **the** replacement rate increases **the** percentage of men who are **not** in the labor force by **.62** percent. This result implied that DI benefits induced more than five **percent** of men in this age group to leave the labor force.

As Bound (1989) points out, however, drawing inferences from cross section equations **is suspect**.²⁸ The difficulty in cross section analysis is that the distribution of DI replacement rates is not random across **the** population. In particular, DI replacement rates are a **monotonically decreasing** function of individual **covered** earnings. Workers with the lowest earnings have the highest replacement rates. The high coefficient on the replacement rate variable in a cross section equation could well be indicating that workers with lower earnings and poorer job prospects are **the** most likely to apply for DI benefits.

Subsequent research attempted to control **for** the **non-randomness** of **the** distribution of DI benefits across the population. Using data from the 1978 Survey of Disability and Work, **Haveman** and Wolfe (1984) and **Haveman**, Wolfe, and **Warlick** (1987) estimate an expected utility model **where** individuals had to choose between applying for DI or remaining in the labor force. They assume that individuals can predict their income flows in both states (DI and other **benefits** plus non-wage income for applicants, and earnings and non-wage income for labor force participants). Individuals then choose the option that maximizes their expected income.

While **Havemen** et al. found a significant, negative relationship between the generosity Of DI **benefits** and participating in **the** labor **force**, **their estimates were** much **smaller** than **the** estimates obtained by Parsons. They estimate that a 20 percent **change** in **the** generosity of

²⁷ An elasticity is a measure of how responsive a particular **variable is** to changes in another variable. Numerical values for elasticities are interpreted as the percentage change in the variable of interest in **response** to a one percent change in some other variable.

²⁸ ~~As other researchers have pointed out, most notably Havemen, Wolfe, and Warlick (1984),~~ Parson's **estimated equations** in particular might also suffer from omitted variables or other specification error biases.

benefits would affect the labor force participation rate of men age 45 to 62 by 0.6 to 1.0 percentage points.

A more recent addition to this literature is the work of Kreider (1994). Also using data from the 1978 Survey of Disability and Work, Kreider specified a structural model of the decision whether to apply for DI benefits. Kreider's model improves on the **Havemen** et al. model in two ways. First, Kreider included hours worked as an argument in the utility function comparing the rewards of applying for DI with those of remaining in the labor force. Second, Kreider allowed for two outcomes for those applying for DI, being either awarded or denied benefits.

Kreider's results are quite similar to those of **Havemen** et al. He estimated that a 20 percent increase in DI benefits would increase the number of recipients in his sample from 6.8 to 7.6 percent. His 1.0 percent increase compares quite closely with the estimate of 0.6 to 1.0 percent obtained in the earlier studies, and his estimate of the percentage increase in awards ($1.0/6.8 = 15$ percent) was in the middle of the 10 to 17 percent range found previously. In addition, Kreider estimated that a 20 percent increase in the probability of acceptance increased the number of recipients by 0.6 percent, and that increasing both the benefit amount and probability of acceptance by 20 percent increased the number of recipients by 1.8 percent, from 6.8 to 8.6 percent of his sample. As in the earlier studies, Kreider needed to make a series of strong assumptions to identify and estimate his model, and these assumptions may have influenced his estimated results.

Time Series Studies: Instead of estimating individual, cross-section relationships, other authors have estimated aggregate, time series **equations**.²⁹ Lando, Coate, and Kraus (1979) estimated a series of models using quarterly data for the period from 1964 to **1978**.³⁰ The independent variables in these models include: (1) the number of disability insured workers; (2) a one **period** lag of the **unemployment** rate for **married** men; (3) the one period

²⁹ Other studies of this sort include Hambor (1975) and Lando (1974). Lando (1974) did not consider the relative generosity of DI benefits.

³⁰ Lando et al. also estimated models for the periods from 1964 to 1975 and 1964 to 1977. The authors were most interested in using these models to predict applications and awards, and checking if models using data through 1975 or 1977 could predict applications and awards in 1976 through 1978 or 1978, respectively.

change in unemployment (set at zero if unemployment is declining); (4) seasonal dummy variables; (5) an adjustment for the introduction of SSI in 1974; and (6) the ratio of the average value of new DI awards to the average spendable earnings of workers with three dependents (the replacement rate).

Lando et al. estimated that a one percent increase in the replacement rate increased the number of **DI** applications by 15,000. When they included a variable estimating the percentage of the insured population age 45 and above, this estimate dropped to 9,000. Using the lower figure, if the replacement rate increased by 20 percent, the number of applications would increase by 180,000, or roughly 20 percent? If approval rates remain constant, this translates into a 20 percent increase in awards, somewhat larger than **Havemen et al.'s** (10 to 17 percent) or **Kreider's** (15 percent) estimates. These results may suffer from omitted variables bias (through time, variables other than the generosity of DI benefits changed that could not be controlled for).

“Natural Experiments”: Bound (1989) adopted a completely different approach. As with Kreider, he used the **1978** Survey of Disability and Work as well as the earlier 1972 Survey of Disabled and Non-Disabled Adults. Bound argues that the labor force participation rate of denied applicants was an upper bound of **the** potential labor force participation rate of **DI** beneficiaries.

This assumption is valid if three conditions hold. First, the process for screening for disability must be sufficiently accurate that DI recipients have at least as severe disabilities, on average, as denied applicants. Second, disability must be negatively related to labor force participation. Third, the process of applying for benefits cannot affect the labor force participation of denied applicants after they have been denied DI benefits.

The first two conditions are relatively innocuous, but the third is more suspect. Denied applicants- might decide not to work because they plan to appeal their denial or reapply for benefits. In addition, while applicants wait for their application to be adjudicated, their human

³¹ The number of applications from **1964** to 1978 ranged from 473,100 to **1,331,200**, averaging 909,500. The ratio of 180,000 to 909,500 is 19.8 percent. Using the larger estimate, applications would increase by 300,000, or 33.1 percent

capital may deteriorate. Bound considered and largely rejected both of these hypotheses. Citing data from Treitel (1976), an internal SSA study of DI applicants, Bound noted that the labor force participation rates of denied applicants was roughly the same for groups at various stages of the appeals process. In addition, denied applicants' labor force participation rates did not increase through time, as one might expect.³² On the second point, Bound noted that most applicants for DI have already been out of work before applying for benefits. The additional wait for claim processing is unlikely to erode their human capital that much more.

Bound determined that the labor force participation rates of denied applicants were quite low. Less than half (45 percent in 1972, 40 percent in 1978) of denied male applicants age 45 and over worked at all, and less than half of those working worked year round. Median annual earnings for those denied applicants that did work were much lower than those of all men in the same age group. For example, median earnings for denied applicants in 1972 who worked were \$4,000, less than half of the \$9,000 median earnings of all workers of the same age. In 1978, the corresponding figures were \$5,300 and \$14,000.

Bound noted that the hypothesis that many DI beneficiaries who would not work without the program would be buttressed if there were a large pool of men with disabilities out of the labor force before the DI program began awarding benefits. Using data from the 1949 CPS, a year preceding DI, he noted that there was a large fraction of older males with disabilities who were out of the labor force. In the past, these individuals relied on state and other sources of public assistance, which DI then started to supplant. Without DI, many of these men presumably would remain out of the labor force, relying on their families, assets, and other forms of public assistance for their needs. Bound thus concluded that DI could explain only a small fraction of the decline in the labor force participation rates of older men.

b. Workers' Compensation Studies

There are two general types of studies that have been conducted to analyze the work incentives and disincentives created by Workers' Compensation (WC) programs.³³ The first

³² After a while, denied applicants either had completed their appeal process or had reapplied for benefits.

³³ A review of these studies is presented by Curington (1993). The discussion in this section is primarily based on this review.

type utilizes cross-sectional data to estimate the effect of WC benefit levels on the duration of work absence. Butler and Worall (1985) use data on Illinois workers with temporary back injuries. They estimate duration elasticities • the percent change in duration of work absence per percent change in the value of income-replacement benefits. Their elasticity estimates range from 0.2 to 0.4. This means that if benefits were to increase by 10 percent, the duration of work absence would be expected to increase by two to four percent. In a similar study, Worall et al. (1988) use data from 13 states and obtain elasticity estimates ranging from 0.0 to 0.2.

Johnson and Ondrich (1990) use duration models to estimate the expected duration of work absences for permanently partially impaired workers in Florida, New York, and Wisconsin. Johnson and Ondrich (1990) use duration models to estimate the expected duration of work absences for permanently partially impaired workers in Florida, New York, and Wisconsin. Like the workers with temporary impairments, these workers receive **income-replacement** benefits while they are out of work. When they return to work, however, they receive compensation based on their degree of impairment. Their elasticity estimates **are** much higher, ranging from 1.0 to 1.2.

The second type of study uses a natural experiment approach. A treatment group and a control group of impaired workers are used to examine the impact of legislative changes in WC benefits on the duration of work absence. The most recent study of this type is by **Curington (1993)**, who uses data on New York claimants to examine the impact of four separate legislative changes in WC benefits. The legislative changes resulted in differences between the weekly maximum benefits for temporary impairments (corresponding to payments during work absences) and permanent impairments (corresponding to benefits received after returning to work). The group affected consists of workers who were receiving the maximum benefit prior to a legislative change, and thus receive an increase in benefits after the change. Workers in the comparison group have lower incomes and are receiving benefits equal to **two-thirds** of their pre-impairment wage, so their benefit level is unaffected by a legislative change in maximums.

Curington uses two different estimation techniques. The first technique is the “difference in differences” **technique**.³⁴ The second utilizes a regression analysis to control for other factors which influence the duration of work absences. Elasticity estimates for persons with minor permanent impairments range from 0.1 to 0.2, which Curington points out are similar to the existing cross-section estimates for temporary total **impairments** (reported above). Curington theorizes that in an environment with constrained weeks of compensation, persons with minor permanent impairments are more like persons with temporary impairments than they are like persons with severe permanent impairments. The elasticity estimates for persons with severe permanent disabilities ranged from 0.8 to 1.3, which are clearly much larger than the estimates for persons with minor permanent impairments.

A January **1, 1978** legislative change in the New York program increased the maximum benefit available after returning to work, without changing the maximum benefit allowed while remaining out of work. Workers with severe impairments were found to decrease the duration of their work absence in response to this legislation, indicating that a policy with a predetermined length of compensation could potentially reduce duration of work absence by changing relative benefits in this way. The statistical significance of the result is weak, however, and should be taken as only suggestive.

Findings from other natural experiment studies have differed from Curington’s. This is not surprising given that each study has focused on different areas and legislative changes. Krueger (1990) looked at the effect of a five percent increase in the maximum weekly benefit in Minnesota on temporarily impaired workers and found an elasticity of 1.7. Meyer, Viscusi, and Durbin (1991) also focus on temporarily impaired workers in examining the impact of a 60 percent benefit increase in Michigan and Kentucky, and find an elasticity range of 0.3 to 0.4.

3. **Health Insurance Coverage and Incentives to Work**

Health insurance coverage is especially important for persons with disabilities, as their need for medical services is much greater than that of persons without physical or mental

³⁴ This technique compares the difference in the before and after means of the log of duration for the treatment group with the difference in the before and after means of the log of duration for the control group.

impairments. In addition, those with impairments may face difficulty in obtaining coverage **because** Of **their** conditions, or may **face** restrictions in **the types** Of **services covered** by **their** insurance (Friedland and Evans, 1994). In this section, we first summarize what is known about the health insurance coverage and medical care expenditures and utilization of persons with disabilities as compared to **those** without disabilities. We then review the literature that examines the potential work disincentives associated with the provision of public health insurance **under** the major disability and welfare programs.

a. **Health Insurance Coverage and Medical Care Expenditures and Utilization**

A **well-developed** literature has demonstrated that persons with disabilities **have less private health** insurance and use more health care **services** than the **overall population**. Persons with disabilities generally have poorer health status and are more often without spouses than the general population. Since private health insurance in the **United States** is largely **employer-based**, persons whose health status inhibits their employment or who do not **have** employed spouses are less **likely** to be privately insured. At the same **time**, as public programs extend health insurance to certain categories of persons with disabilities, a disproportionately high number of persons with disabilities receive public **health** insurance.

A significant percentage of persons with and without disabilities lack both private and public health insurance; this percentage is higher than the corresponding percentage **for** the overall population. Reviewing data from the 1989 NHIS, **LaPlante** (1993) reports that 16.6 percent of persons without activity limitations and 17.8 percent of persons with activity limitations lack insurance for health care services (Exhibit II.C.2). These data also indicate that, relative to those without activity limitations, a significantly lower percentage of persons with an activity limitation have private health insurance while a significantly higher percentage have either public or both private and public health insurance.

Exhibit II.C.2

**Health Insurance Coverage of Persons Ages 18-64
National Health Interview Survey, 1989**

	Persons with Activity Limitation	Persons without Activity Limitation	All Persons
Private Insurance Only	64.7	77.7	74.7
Public insurance Only	18.7	3.7	5.7
Private & Public Insurance	8.2	1.6	2.5
Undefined Plans	0.6	0.4	.4
Not Insured	17.6	16.6	16.7
Total	100.0	100.0	100.0
<i>Medicare</i>	<i>11.4</i>	<i>0.4</i>	<i>1.9</i>
<i>Medicaid</i>	<i>14.8</i>	<i>2.8</i>	<i>4.4</i>

Source: LaPlante (1993).

Rubin and Wilcox-Gok (1991) study Medicare enrollees with disabilities and conclude that income, education, marital status, and having an employed family member correlate positively with the likelihood of having private health insurance. Both for persons with and without disabilities, however, employment is a vital factor in determining the likelihood of having private health insurance (Levit, Olin, and Letsch, 1992)(Lewin-ICF, 1992). Reviewing a study by the National Rehabilitation Hospital of 607 persons with disabilities in the Washington, DC area, Burns, Batavia, and DeJong (1991) concluded that the likelihood of having private insurance increases with gainful activity. In their study, 72 percent of those who worked full-time, 52 percent of those who worked part-time, and only 26 percent of the unemployed had private insurance (Exhibit II.C.3).

Exhibit II.C.3

Sector of Health Insurance by Employment Status

Source of Insurance	Employment Status			Total
	Full-time	Part-time	Unemployed	
Public Only	4.9%	22.6%	33.2%	23.5%
Private Only	72.0%	51.6%	27.9%	43.8%
Public and Private	20.9%	22.6%	33.8%	28.7%
Neither	2.2%	3.2%	5.1%	4.0%
Total	100.0%	100.0%	100.0%	100.0%

Source: Burns, Batavia, DeJong (1991).

These data also indicate that the likelihood of having public insurance is negatively correlated with employment. At the same time, while the likelihood of having private insurance decreases as functional or activity limitations become more severe, the likelihood of having public insurance increases (Exhibit II.C.4) (Bureau of the Census, 1994) (Mathematica Policy Research and Systemetrics/McGraw Hill, 1990).

Exhibit II.C.4

Health Insurance Coverage by Disability Severity,
Persons Aged 15-64, 1991-1992

	No Disability	Non-severe Disability*	Severe Disability*
Private Insurance	80%	74%	48%
Public Insurance	5%	7%	36%
No Insurance	15%	19%	16%

* Persons were classified as having a severe disability if they used a wheelchair or had used another special aid for 5 months or longer, were unable to perform one of more functional activities or needed assistance with an ADL or IADL, were prevented from working at a job or doing housework, or had a selected condition, including autism, cerebral palsy, Alzheimer's disease, senility or dementia, or mental retardation.

Source: U.S. Bureau of the Census (1994).

As federal disability programs approve benefits only for those persons whose disabilities prevent substantial gainful activity, these findings are complementary and explain why the receipt of public health insurance is particularly high among persons not in the labor force.

Medicare benefits are granted to persons who have been receiving Social Security Disability Insurance (DI) benefits for more than twenty-four months. Medicaid benefits are extended to most persons whose disabilities and resources qualify them for Supplemental Security Income (SSI). In some cases, an individual's qualification for public health insurance prompts the forfeiture of private health insurance. One author, investigating data from the 1982 New Beneficiary Survey, reports a propensity among DI beneficiaries to discontinue private insurance after qualifying for Medicare (Muller, 1989). While public programs do support health insurance for persons with severe disabilities, they do not ensure complete

coverage. Further, data from the New Beneficiary Survey suggest that more than one-fourth of newly entitled **DI** beneficiaries are without health insurance coverage in the last six months of their waiting period (Bye and Riley, 1989).

Persons with disabilities, who report lower health status than the overall population, also experience substantially higher rates of health care services utilization and incur substantially higher health care costs than those without disabilities (Burns, Batavia, and **DeJong**, 1991). In his review of the 1989 NHIS, **LaPlante** (1993) finds that, depending on severity, persons with limitations in performing major activities, work activities, or **ADLs** or **IADLs** have between two and six times as many physician contacts and 2.5 to 8.5 as many hospitalizations as persons without such limitations. Examining utilization by Medicare enrollees, Lubitz and Pine (1986) and McCoy and Iams (1994) conclude that hospitalization and mortality rates for enrollees with disabilities are substantially higher than for aged enrollees or the overall population.

The rate of health services utilization varies substantially by insurance status. The 1989 **NHIS** data indicate that, depending on level of disability, uninsured adults with disabilities have from 19 percent to 44 percent fewer physician contacts and from 29 percent to 65 percent fewer hospitalizations than insured persons with similar disabilities (**LaPlante**, 1993). Utilization is also positively associated with having secondary insurance. In their study of Medicare beneficiaries, McCoy and Iams (1994) found that Medicare beneficiaries with additional private health insurance were more than two times as likely to use inpatient services than those who had no additional insurance.

Data from the 1987 NMES illustrate utilization and expenditure patterns of persons with and without disabilities (Exhibit II.C.5). Except for dental visits, persons with disabilities experience substantially higher utilization and average expenditures for all types of health services than do persons without disabilities. Overall expenditures for health care services average \$9,379 for persons with disabilities and \$1,301 for persons without disabilities. Relative to persons without disabilities, at least twice the percentage of persons with disabilities use home and community based care, durable medical equipment, and inpatient and outpatient hospital services. Expenditures for persons with disabilities for home and

community based care, hospital stays, physician office visits, and outpatient hospital visits average more than three times as much as similar visits for persons without disabilities.

Exhibit II.C.5

Percent of Persons with Expenditures for Each Type of Health Care Service and Average Expenditure per User, Persons Under Age 65, 1987

Type of Service	All Persons		Without Disabilities		With Disabilities	
	Percent Using	Average Expenditures	Percent Using	Average Expenditures	Percent Using	Average Expenditures
Any service	83.1	\$1,387	82.9	\$1,301	97.6	\$9,379
Prescribed Medication	54.0	\$128	53.7	\$123	88.8	\$455
Home/Community Based Care	1.4	\$1,130	1.2	\$798	21.5	\$3,107
Durable Medical Equipment	18.7	\$149	18.4	\$144	51.4	\$346
Dental Visits	43.2	\$294	43.3	\$293	35.4	\$297
Hospital Stays	7.4	\$7,241	7.2	\$6,815	31.9	\$17,863
Physician Office Visits	66.6	\$293	66.5	\$283	83.5	\$1,113
Outpatient Visits	15.9	\$899	15.6	\$860	44.7	\$2,385
Emergency Room	13.8	\$263	13.7	\$260	25.0	\$466

Source: Tabulations of 1987 National Medical Expenditure Survey from Lewin-VHI (1995a).

b . Public Health Insurance and Disincentives for Employment

As described in the previous section, individuals with disabilities experience higher than average medical care expenditures and utilization, and are less likely to be covered by private insurance than persons without disabilities. This would suggest that public health insurance availability contingent on participation in income support programs (or just low income) may create a strong incentive to leave the labor force in favor of DI or SSI program participation, particularly among uninsured or underinsured persons with disabilities. In addition, employers who provide health insurance for their employees may find the high costs of health care for workers with disabilities a substantial deterrent to employing them. In this section, we review the available evidence on work disincentives associated with health care costs and access to public and private health insurance.

To date, no studies have been conducted to determine the extent to which Medicare and Medicaid availability and the high costs of private health insurance may induce individuals with disabilities to leave the labor force in order to obtain health insurance coverage.

Several studies have, however, examined the effect of Medicaid benefits on the labor force and program participation decisions of AFDC mothers.³⁵ We would expect the impacts on participation decisions for people with disabilities to be similar. Two early AFDC studies (Blank, 1988) (Winkler, 1990) found little or no effect. Several more recent studies, (Moffitt and Wolfe, 1992) (Yelowitz, 1994) (Wolfe and Hill, 1995) addressed methodological flaws of the earlier work and found much stronger effects of Medicaid on labor force and AFDC participation.

Both Blank (1988) and Winkler (1990) used state-specific average Medicaid expenditures for families in different states as the measure of the value of these services. This measure failed to capture variations of the value of Medicaid services to different families, and would thus bias their results towards finding no effects for Medicaid on labor force participation or hours worked.

Moffitt and Wolfe (1992) estimated the impact of Medicaid benefits on AFDC caseloads using a sample of 545 female-headed households from the 1985 panel of the Survey of Income and Program Participation (SIPP). The authors developed an index of the value of Medicaid benefits to families that depends on state program benefits and the composition of the family. They also developed an index of the probability of access to private insurance if the family leaves welfare. Their estimates, which control for numerous household characteristics variables, imply that a 33 percent increase in the value of Medicaid benefits would increase the AFDC caseload by about six percent, and that continuing benefits for all women who leave AFDC would reduce the caseload by almost 11 percent.³⁵

Yelowitz (1994) points out that the measurement of the value of Medicaid in the Moffitt and Wolfe study may have biased the findings in favor of strong effects of Medicaid. The health index employed by Moffitt and Wolfe valued Medicaid benefits more highly for families

³⁵ Probit estimates of AFDC participation that included numerous household characteristic variables along with the two indices yielded significant coefficients with the expected signs for both indices (positive for the value of Medicaid benefits, and negative for insurance availability).

with greater health problems. Their measure takes health status into account, but health status itself is a strong determinant of wages and of the desire to work. Thus, Moffitt and Wolfe's methodology might attribute changes in work caused by the effect of health status on wages and on the desire to work to changes in Medicaid coverage.

Yelowitz himself analyzed this issue using the natural experiment offered by recent expansions in Medicaid coverage for children. Legislation during the 1980s consistently required states to extend Medicaid coverage to children in low income families. With these expansions, single mothers could often earn more and retain their Medicaid benefits.

The natural experiment nature of the Medicaid expansions permitted Yelowitz to estimate their effects on the labor force and AFDC program participation decisions of single women for a sample of single mothers age 18 to 55 drawn from the March CPS from 1989 through 1992. He only needed to assume that his control group, women that were not subject to the expansion(s), and his treatment group, women that were identical in all important respects beyond measurable differences such as age, education, family size and composition, and state of residence. There was no need to estimate the value of Medicaid at all, thus avoiding a difficult empirical **problem**.³⁶

Yelowitz estimated that a Medicaid expansion that increases the maximum income of recipients by 25 percent of the poverty line increases **the labor** force participation rate of single women subject to the expansion by 3.32 percent, and decreases the proportion receiving AFDC by 4.81 percent. Both estimates were highly significant and robust to many changes in specification and choice of sample. These estimates were quite large, much larger than those found by Winkler, but somewhat smaller than those found by Moffitt and Wolfe.

³⁶ The optional nature of some expansions and the latitude legislation grants states in timing mandatory expansions could introduce sample selection bias into this natural experiment. That is, a state's decision of whether to adopt an optional expansion or when to implement a mandatory expansion may not be random. Another potential source of **bias** is the effect of expansions on family status — i.e., expanding benefits to low income children regardless of their parents' marital status may encourage some single mothers to remain or become married, as opposed to staying and becoming single to qualify for AFDC and Medicaid. In this paper, Yelowitz attempts to control for the first source of bias by comparing **within**-state changes in labor force and AFDC program participation decisions over time across states for a sample of states, and finds qualitatively similar results.

Wolfe and Hill (1995) simulate the provision of health insurance non-contingent on AFDC participation for a sample of single mothers using the 1990 Survey of Income and Program Participation. The authors estimate a model of labor force participation, incorporating health measures to capture both the effect of the mother's impairment and the effect of a child's impairment on the labor supply decisions of single mothers? This model is used to simulate the impact on labor supply if health insurance were to be provided independent of AFDC program participation. The authors find large positive effects on employment among AFDC recipients when insurance coverage independent of AFDC is simulated. Under a scheme where all children are covered by health insurance, employment increases by 21.7 percentage points for AFDC recipients compared to 7.4 percentage points for non-recipients.

While not analyzing the issue directly, a recent study by Gruber and Madrian (1993) strongly supports the inference that health care costs and insurance access reduce the labor supply of workers with disabilities. They considered the introduction of "continuation of coverage" mandates in a number of states during the decade from 1974 to 1984. These required most firms that insure their employees to allow former employees to continue to participate in the insurance group by paying the premiums themselves, for a period whose length varied across states. These mandates effectively permitted former workers, particularly older workers, to purchase private health insurance at rates well below rates they would have had to pay in the market for individual **coverage**.³⁸ Using a sample of 55 to 84 year old men drawn from the March Current Population Surveys from 1980 to 1990, the authors estimated that one year of mandated continuation benefits increased retirement rates by 20 percent.

³⁷ The likelihood of employment is estimated as a function of health status (an indicator of self-reported poor or fair health and the number of **ADLs** between 0 and 8 that **the mother has difficulty performing**), **the expected value of Medicaid** benefits (using the methodology described in Moffit and Wolfe (1992)), the expected value of private health insurance, whether or not a child in the-family has a -disability, health adjusted predicted wages if working, the level of AFDC benefits, and demographic and human capital **characteristics**.

³⁸ **Many** older workers under the age of 65 retire from the labor force. If their employer does not provide retiree health insurance coverage, these older, retired workers had to purchase health insurance privately. Premiums for these private policies are much higher than the cost of purchasing coverage through a former employer for two reasons: (1) the mandates **typically** required employers to sell insurance at the average cost (plus two percent) of covering all workers -- private plans typically are both **age-adjusted** and have pre-existing condition and other medical **underwriting** clauses that substantially increase their costs; and (2) administrative loads on individual policies are much higher than on employer-provided, group insurance.

The estimate appears to be uniform at all ages. This suggests that Medicare and Medicaid coverage may act as a powerful inducement to apply for DI and/or SSI benefits.

4. The Effect of Impairment on Earnings

The effect of poor health on earnings has been **well** documented. Health status has been shown to significantly affect earnings through **its** impact on wages and the quantity of labor supplied. Poor health can negatively affect the level of investment in human capital by reducing the rate of return associated with such investments. For example, the costs of investment may be higher or market activities limited for persons in poor health. Poor health may also destroy or reduce skills already acquired. A lower skill level implies a lower productivity of labor and a lower wage rate. For persons with disabilities, wages may also be indirectly affected by a health condition because of discrimination by **employers**.³⁹ Poor health may reduce the number of hours an individual is **able** to supply as well as reduce the number of hours he or she is **willing** to supply given a lower wage rate due to poor health.

While there is considerable evidence of the negative effects of poor health on earnings, available research has rarely focused on the earnings experiences of persons with disabilities. Many studies have relied on a very general indicator of health status--self-reported excellent, good, fair, or poor health. Those with more complete information on specific health conditions do not have information on the severity of the condition. This means that the effect of a particular diagnosis or health condition will be estimated over a sample that includes both individuals who are disabled by that condition and individuals who are not. The studies discussed below by no means represent a complete list of the studies done to date on the impact of poor health on earnings. They do, however, provide an indication of the variety of methods, data, and measures of impairment used to investigate the **issue**.⁴⁰

One of the earliest studies of the impact of poor health on earnings is that of Luft (1975). Luft attempts to identify the effects of poor health on the various components of

³⁹Studies of wage discrimination against persons with disabilities are reviewed in Section D of this chapter.

⁴⁰ Other studies, not discussed in this report, that examine the impact of poor health on earnings include Berkowitz, Johnson, and Murphy (1976), Benham and Benham (1982), Diamond and Hausman (1984), and Mitchell (1990).

earnings including: labor force participation, weeks worked per year, hours worked per week, and the hourly wage. The author divides the sample in to “sick” and “well” groups based on responses to questions regarding limitations in the amount or kind of work (or housework) the respondent can perform. Standard labor force participation, supply, and wage equations are estimated for the “well” population by gender and two race. groups (whites and blacks). The coefficients from these regressions are applied to the characteristics of the “sick” population to compare the adjusted differences in the components between the sick and well groups by race and gender.

Luft finds “a clear health effect” on labor force participation, hours worked, and hourly wage. Those in poor health have both observed and adjusted values lower than those in good health. Of perhaps greater interest is the finding that poor health impacts the various components of earnings differently across gender and race groups. Black males were much more likely to exit the labor force or work fewer weeks than white males, while white males were more likely to experience decreases in hourly wages and earnings. A similar pattern was apparent in comparing black and white females. For overall earnings, black men and women lose substantially more relative to their initial level than white men and women.

Bartel and Taubman (1979) estimate the effects of specific health conditions on the probability of being out of the labor force, the probability of being unemployed, wage rates, hours of work, and total earnings. They also analyze whether- these effects persist for any length of time after diagnosis of the health condition. Again, standard labor supply, wage, and earnings equations are estimated for a sample of older men, but in this case, variables indicating the presence of one of eight specific diseases are included.” Five separate equations of the log of current (1973) earnings are estimated, each with a set of disease indicators representing a diagnosis at different time intervals prior to 1973.

The results show large impacts on earnings (20-30 percent reductions) for some diseases. **Mental health** conditions, arthritis, respiratory conditions, diseases of the nerves, and diseases of the liver, pancreas, and gall bladder had the largest effects, while heart

⁴¹The specific conditions studied include heart disease, psychoses/neuroses, arthritis, pulmonary conditions, ulcers, diseases of the nerves, **bone** diseases, and diseases of the liver, gall bladder, and pancreas.

conditions, ulcers, and bone diseases had the smallest effects on earnings. In general, more recent diagnoses had much stronger effects on earnings, but significant reductions on current earnings were found for arthritis, mental health conditions, and respiratory conditions diagnosed ten years in the past. The authors also show that the relative supply effects differ by disease. For example, about 20 percent of the reduction in earnings experienced by those with arthritis or heart conditions was due to a reduction in hours worked, while 45 percent of the earnings reduction for those with mental health and respiratory conditions could be attributed to reduced hours of work.

Chirikos and **Nestel (1981)** examine the relationship between health and earnings using indicators that measure changes in health status over a ten year period. Their model is an improvement over previous work in that they estimate the effects of health on wages, adjusting for selection bias, and then incorporate their health adjusted wage equation into an hours of work equation to analyze the effects of health on the quantity of labor supplied. This specification captures the indirect effect of health on hours worked attributable to lower marginal productivity and reduced hours due to lower wages.

The authors estimate wage and hours equations for each of four sex and race subgroups using data from the National Longitudinal Surveys (NLS) of Older Men in 1978 and Mature Women in 1977. The health measures used are indicators of whether a respondent was always in good health, always in poor health, initially in poor health but improved over the period, or initially in good health but deteriorated over the period. Individuals are categorized into one of these four groups based on their self-ratings of excellent, good, fair, or poor health, self-reports of functional limitations, and self-reports of whether health limits or prevents work. They find evidence that health problems incurred any time over the past ten years can affect current labor market outcomes, and (as in Luft's analysis) that these effects differ across race and gender subgroups.

Baldwin, **Zeager**, and Flacco (1994) develop a sophisticated model to estimate the impact of functional impairments and health conditions on wages, and how the impacts may differ between men and women. Rather than having health variables representing specific conditions and impairments enter directly into a wage equation that controls for other **non-**health human capital characteristics, the authors construct a disability index to be used as the

measure of health status in the wage estimation. The use of a disability index rather than indicators of the specific impairments is intended to circumvent problems in measuring disability from national surveys that use self-reported measures of disability. An individual's self-perception of disability may be influenced by his current employment status. For example, those who are not employed may be more likely to report that it is because of a health condition, while those with impairments who are employed may be likely to report that they do not have a disability. Because a "true disability" cannot be ascertained from self-reports, estimates of the effects of impairment on labor force participation and wages will be **biased**.⁴²

The health index used by Baldwin et al. is based on a **probit** model that estimates the likelihood that an individual will report that he or she is disabled given the individual's age, education, marital status, predicted employment status, and eleven specific types of **impairments**. Using the coefficients from the **probit** equation, the disability index is constructed for representative males and females in each of twenty-five impairment categories. The disability index value for a particular impairment may be interpreted as the probability that the "average" individual with that impairment reported that he or she had a disability.

The results confirm that disabilities have a significant negative effect on wages. Wage offers for workers with impairments ranged from 74 percent to 101 percent of the benchmark wage offer for unimpaired workers. Nervous conditions and mental illness show substantially greater reductions in wages than other types of impairments. The results also highlight the gender differences in the effects of specific impairments on wages. Limitations to mobility and strength reduce wages more for males than for females, while the opposite is true for limitations to sensory capacities and appearance.

The study by Baldwin et al. highlights the important issue that different types of impairments will have different effects on wages and that the effects may also vary between men and women. The actual wage differentials estimated should be interpreted with caution, however. Given the methodology, the relative values of the health indices across impairment categories are determined by the relationship between specific impairments and the probability

⁴² Stem (1989) provides a discussion of this issue and develops the index used by Baldwin et al.

that an individual reports a work disability. The direct relationship between impairments and **wages** may be quite different.

Burkhauser and Daly provide a longitudinal perspective of the impact of impairment on **earnings** (**Burkhauser** and Daly, 1994b). Using data from the Panel Survey of Income Dynamics (PSID) spanning the years 1970 to 1989, **the** authors examine **the** earnings of individuals before and after **the** onset of a work **disability**⁴³. They find that among men, median earnings decline by 24 percent from **the** period one year prior to one year after the onset of disability. Two years after the onset of disability, median earnings for men show a 31 percent **decline**. For women, **the decline in earnings is even more pronounced. Median earnings fall** by 41 percent one year after disability onset and 62 percent two years after onset. In **related** work, Daly (1994) shows that **the declines in average earnings following disability are more drastic for men With less than a high school education than for those with at least a high school education. Among men without a high school education, average earnings decline by 46 percent from the period one year prior to two years after the onset of disability. For men with a least a high school education, average earnings decline by only 9.3 percent.**

D. The Demand Side of the Market

Considerably less has been written about **the demand side of the labor market for persons with disabilities. Greater attention to the importance of the employer in facilitating the labor force participation of persons with disabilities has occurred, however, since the passage of the Americans With Disabilities Act in 1990. The Act prohibits discrimination on the basis of mental or physical impairment and requires employers to provide reasonable accommodation to their employees with disabilities who have special work-related needs.**

In this **section, we examine** issues related to a firm's demand for workers with disabilities. We first discuss the effect of changes in the business cycle on the labor force participation of persons With disabilities and review studies that suggest that the employment of disabled workers may be more sensitive to changes in the business cycle than the employment of non-disabled **workers**. Next, we discuss how industrial restructuring and the

⁴³ In this study, an individual has a disability if he/she reports that a physical or nervous condition limits the type or amount of work that he/she can do.

changing nature of jobs may affect the labor force participation of those with disabilities. We then provide a brief review of the literature that examines the issue of wage discrimination against persons with disabilities. This section concludes with a discussion of work accommodation by employers and the potential impact of the Americans with Disabilities Act on the employment of persons with disabilities.

1. The Business Cycle

Changes in the economic environment alter the choices persons with disabilities face when deciding whether to leave the labor force. These changes affect the benefits to remaining in the labor force through their effects on wages, other forms of compensation, and the supply of different types of jobs.

Cyclical changes in the economy, particularly changes in unemployment, could affect the likelihood that persons with disabilities will leave the labor force. In seeking other ways to replace their earnings, unemployed persons with disabilities may apply for disability benefits. We first discuss two recent studies that look at the impact of recessions on labor force participation, then provide a summary of studies that have examined the impact of recessions on Social Security Disability Insurance (DI) and Supplemental Security Income (SSI) applications and awards. Overall there is strong evidence that employment of workers with disabilities is very sensitive to the business-cycle.

Bound and Waidman (1992), using Bureau of the Census data on the number of 45-64 year-old men identified as unable to work in each state over the period from 1973 to 1979, estimated that a one percentage point increase in unemployment was associated with an annual growth of 7.5 percent in the fraction of men identified as unable to work. This estimate implies that about 25 percent of the rise during the 1970s in the fraction of men identified as unable to work could be accounted for by the rise in the unemployment rate over that period of time.

Yelin and Katz (1994a) examine labor force trends among persons with and without disabilities using **NHIS** data from 1970 to 1992 and CPS data from 1981 to 1992. They find that in periods of economic downturn, persons with disabilities suffer more pronounced losses in labor force participation than persons without disabilities; but in periods of economic growth,

they experience more **pronounced gains than** persons without disabilities, indicating that persons with disabilities are the “last-hired” and the “first-fired.”

Early studies using national time series data looked at the impact of recessions on DI applications and awards and found mixed **results**: These studies’ estimates of the effect of a one percentage point rise in the unemployment rate on DI applications range from no effect to a ten to fifteen percent effect, with effects on DI awards ranging from no effect to a five to seven percent **effect**.⁴⁴ One reason that the results are mixed is that it is very difficult to separate the impact of recessions from the impact of programmatic changes using national time series data.

A recent study by Lewin-VHI uses state-level data for the period from 1988 to 1992 to analyze the impact of recessions and other factors on applications and awards for DI and for SSI disability benefits (Lewin-VHI, 1995b). Use of state-level data makes it possible to control for the effects of national program changes. A very strong and statistically significant relationship was found between the state-level business cycle measure (changes in the unemployment) and the number of DI and SSI applications. Specifically, in 1992 there were approximately 59,000 more DI applications filed than there would have been if unemployment had remained at the 1988 level, representing a 7.3 percent increase. Not all of the applications were successful --there were about 20,000 more DI awards made in 1992 than there would have been if unemployment had remained unchanged. For SSI, there were approximately 41,000 more applications filed in 1992 than would have been filed if unemployment had remained at the **1988** level, representing a 4.7 percent increase, and 14,000 more awards, a 3.3 percent **increase**.⁴⁵

2. Industrial Restructuring

During the past two decades, ‘economic restructuring,’ “downsizing,’ and similar terms have been used to refer to fundamental changes in the labor market. These changes may have important implications for the labor force participation of persons with disabilities. In this

⁴⁴ A detailed discussion can be found in Lewin-VHI (1995).

⁴⁵ There is significant overlap between the **DI** and **SSI** estimates because many individuals file both **DI** and **SSI** claims, and some are awarded both. Of the 59,000 **DI** applications induced by the recession, 30,000 were filed by individuals who had also filed an SSI application.

section, we review the empirical work that documents the long **term** changes in the structure of jobs in the economy.

One aspect of the continuing restructuring of the economy is continued decline in the number of 'good jobs.' While researchers and other analysts may differ as to exactly what constitutes a "good job," most would agree good jobs are jobs that offer workers with low skills and low educational attainment wages that are relatively high when compared to their better skilled and educated counterparts. This decline in the supply of "good jobs" may have important implications for workers with disabilities. Many workers with disabilities acquired those disabilities by working in physically demanding, low-skill occupations. If wages for these jobs are declining, many workers with disabilities on the margin between remaining in the labor force and applying for disability benefits may decide to apply.

As evidence of the decline in the supply of 'good jobs," many point to the continued declines in annual earnings of individuals with low educational attainment. For example, the earnings of men age 25 to 34 with less than nine years of schooling declined by 37 percent in real terms (3.5 percent per year) from 1979 to 1992, while those of men age 35 to 44 with less than nine years of schooling declined by 30 percent (2.7 percent per **year**).⁴⁶

Not only have the earnings of workers with low educational attainment declined recently, but their earnings have also declined relative to the earnings of their more highly educated counterparts. A recent study by Bound and Johnson used CPS data from 1973, 1978, and 1988 to decompose changes in relative wages for different gender/education groups into the following components (Bound and Johnson, 1992):

- 'Rents' -- these are changes in the composition of wages within each industry, which correspond to the loss of "good jobs" hypothesis;
- 'Supply' -- the supply of workers with different skills may be changing, which could change the relative wages workers with different skills receive;
- "Demand" -- as the demand for the products each industry produces changes, the demand for workers with different skills (and thus their wages) could change, if the demand for workers with different skills varies across industries; and

⁴⁶ Published data from the Current *Population* Survey, **selected** years.

- “Technical Change” -- which consists of general technical changes common to all industries (such as the expansion of computers and tele-communications), and specific technical changes that affect particular industries or particular types of workers.

Bound and Johnson’s results from 1979 to 1988 are especially interesting, when the wages of more highly educated persons increased relative to their less educated counterparts. For example, the wages of men with college education increased by 16 percent relative to those of men with high school degrees, and increased by seven percent for men with high school degrees relative to those for high school dropouts (the corresponding figures for women were 12 percent and six percent, respectively). Of the four components, rents accounted for very small parts of these increases. Changes in the relative supply of workers implied that the relative wages of the better educated groups should have fallen -- i.e., from 1979 to 1988, the relative number of better educated persons has increased, which should mean that the “prices” for their labor (i.e., their relative wages) should have fallen. No clear story emerges for demand. Sometimes, changes in the demand for **workers** from different gender/education groups imply that the relative wages should have increased slightly for some better educated groups, **while** in other cases the **relative** wages of **the better** educated should **have** fallen **due** to demand **changes** from 1979 to 1988.

The one remaining explanation for observed changes in relative wages is technical change, both specific and general technical **change**.⁴⁷ Bound and Johnson determined that while specific technical **change accounted for** small **fractions** of the observed increases in the relative wages of **the better** educated groups, general technical change accounted for a **great** deal of **the** change in relative wages. In fact, general technical change alone implied that the relative wages of better educated groups should have increased more rapidly than they actually did from 1979 to 1988, partially offsetting the predicted declines in relative wages due to changes in supply.

Bound and Johnson’s findings have mixed implications for persons with disabilities who wish to remain in or reenter the labor force. The large increases in the relative wages of highly skilled workers, even as the supply of these **workers** increased, suggests that persons with disabilities and low skills are increasingly unlikely to secure employment in a good job at good

⁴⁷ In each case, there **was** also some of **the** observed change in relative wages for each gender/education group that was unexplained -- i.e., the “residual” change in relative wages.

wages, At the same time, the finding that general technological change has substantially increased the wages of better educated workers holds out the possibility of improving job prospects for many workers with disabilities. Workers with these types of jobs appear to use high technology equipment, such as computers. These “high tech’ jobs are less physically demanding than traditional blue collar jobs. This suggests that persons with disabilities now holding these jobs can hold on to them and that persons with disabilities not currently in the labor force would do well if trained in the skills required by these jobs.

Many researchers note that ‘good jobs’ are concentrated in industries whose share of total employment is declining. One study (Krueger and Summers, 1988) defined ‘good jobs’ as jobs that pay wages to their workers that are higher than the wages those workers would be expected to receive given their education, skills, and other attributes. These ‘good jobs’ thus have positive wage differentials (wages in excess of expected wages).

Krueger and Summers measured the wage differentials by industry using CPS data from 1974, 1979, and 1984. They found that traditional goods producing industries tended to have large, positive wage differentials, while non-goods producing industries, particularly **services** and retail trade, had large, negative wage differentials. The patterns in wage differentials by industry also persisted through time. Industries whose employment shares are declining tended to provide ‘good jobs,’ or jobs with positive wage differentials, implying that the supply of ‘good jobs’ for low skilled workers has been falling. @

Two recent studies, (Yelin and Katz, 1991) and (Yelin and Katz, **1994a**), compared the labor force participation rates of workers with and without disabilities. Yelin and Katz determined that the labor force participation rates of both groups increased during the 1980s. Yelin’s follow-up study discovered that while the labor force participation of those without disabilities remained steady during the **1990s**, labor force participation rates for persons with disabilities declined. These studies appear to suggest that recent changes in the labor market are ‘pushing out’ persons with disabilities, many of whom may then apply for disability benefits.

⁴⁸ Unpublished tabulations prepared by the Department of Labor using CPS Pension Supplement data indicate that the share of employment in industries with positive wage differentials fell by five percentage points from 1972 to 1988.

manufacturing jobs that emphasize flexibility, team work, and a more horizontal management structure, rather than the traditional model of performing repetitive, mechanistic tasks under the close supervision of a foreman or other manager.

3. Wage Discrimination Against Persons with Disabilities

Wage discrimination occurs when two individuals with equal productivity are offered **unequal** compensation. In **the case** of a disabled worker, this discrimination could be a result of prejudice or of an incorrect perception about **the** average productivity of disabled workers. **Persons with disabilities do have health problems that may affect their productivity, and it can be difficult to differentiate between the wage effects which are due to health limitations and those which are due to discrimination. To the extent that wage discrimination does occur, this may discourage persons with disabilities from participating in the labor market.**

There are two types of studies that focus on wage discrimination against disabled workers.⁵⁰ The first type of study attempts to separate wage differentials between disabled and non-disabled workers into discriminatory and nondiscriminatory components. These studies use log linear wage equations to estimate discriminatory wage differentials, in the spirit of other wage discrimination studies.⁵¹

A study by Johnson and Lambrinos (1985) uses data from the Social Security Survey of Disabled and Nondisabled Adults (SSDA) to look at wage offer differentials in 1972. The published results are inaccurate due to a computer programming error which was subsequently discovered and corrected. Corrected results are published in Baldwin and Johnson (1992a). Johnson and Lambrinos measure workers' productivity by education, work experience, and a health limitations index.⁵² They found that after controlling for measured productivity differences, disabled men received wage offers that were approximately 84% of

⁵⁰ A detailed review of these studies is provided by Johnson and Baldwin (1993). The discussion here relies heavily on their review.

⁵¹ This technique is detailed by Reimers (1983).

⁵² The **health limitations index is** constructed by principal components analysis. This technique can be used when there is a high degree of collinearity among a group of variables. The idea is that the parts of these variables which account for most of the variation are extracted. **The index created for this study is potentially problematic, however, because principal component analysis was applied to four groups of variables separately, with the resulting components interacted to form a single variable. This produces a rather ambiguous variable.**

Related to the declines in the supply of 'good jobs' for workers with low skill levels is a long-term trend that may **affect the** labor force participation of persons with disabilities is the changing occupational structure of work. The fraction of men and women working in production jobs is declining, and the fraction working in service and white collar jobs is increasing. This shift in the occupational structure could be affecting the employment of disabled workers in two ways. First, the shift presumably implies that the physical requirements of jobs have declined. We might expect this would increase the labor force participation of persons with physical impairments, but perhaps have the opposite effect for persons with mental impairments. Second, a decline in any sector of the economy may displace workers in that sector, including those with disabilities.

Workers with disabilities, particularly those with previous work experience, fare about as well as workers without disabilities in finding new and well paid jobs in the service sector as the manufacturing sector continues to decline (Yelin and Cisternas, 1994). Workers with disabilities, however, are less **successful** in finding full-time work. While weekly hours worked by workers without disabilities increased by 1.2 hours from 1981 to 1993, the hours of workers with disabilities fell by 2.2 hours during the same period. In addition, the percentage of all workers with disabilities who report working part-time because they cannot secure full-time employment has increased much more rapidly from 1981 to 1993 than it has for their counterparts without disabilities.

Yelin and Cisternas also speculate that growth of 'contingent' employment -- i.e., workers working on a temporary or contract basis for an employer -- may adversely affect workers with disabilities more than workers without disabilities. Workers with disabilities receiving disability benefits may be reluctant to accept a contingent job, which is unlikely to include employer-provided health insurance, because they fear losing their Medicare and Medicaid coverage. Because these contingent jobs often are a first step to permanent jobs with benefits, workers with disabilities may find it harder in the future to reenter the labor force than those without **disabilities**.⁴⁹ Finally, Yelin and Cisternas conjecture that workers with mental impairments may have a harder time working productively in restructured

⁴⁹ Even permanent jobs offering health insurance benefits may not provide coverage to workers with disabilities for all their medical needs, through restrictions on **coverage** for "pre-existing" conditions and other forms of health insurance underwriting.

the offers to nondisabled men, and disabled women received offers that were 40% of the offers to nondisabled women. It is important to note that productivity is difficult, if not impossible, to measure accurately. Hence, wage differentials which are found to be due to **discrimination** may actually be due to unmeasured productivity differences.

Baldwin and Johnson conducted two studies using data from the 1984 Survey of Income and Program Participation (Baldwin and Johnson, **1992a**, 1992b). They use the same techniques as Johnson and Lambrinos (**1985**).⁵³ Baldwin and Johnson found that, after controlling for productivity differences, disabled men received wage offers that were 88% of the offers to nondisabled men and disabled women received wage offers that were 90% of the offers to nondisabled women.

The second type of study focuses on how discriminatory wage differentials are affected by issues such as intensity of prejudice or employer uncertainty. Johnson and Lambrinos (1987) use the 1972 SSDA data to demonstrate that among disabled persons, there is a negative correlation between men's wages and the intensity of the prejudice associated with their particular impairments. There were no correlations of significance for disabled women. Intensity of prejudice measures were derived from the rankings from over 40 studies focusing on attitudes towards disabled persons.

Baldwin and Johnson (1992a) found that the size of the wage differentials between disabled and nondisabled persons increased as the disabled group being considered was limited to persons having impairments which are subject to increasingly intense prejudice. In another study by Baldwin and Johnson (**1992c**), rankings indicating the size of wage discrimination are compared to employer rankings of the employability of persons with specific impairments and the general public's 'social distance' rankings of persons with specific impairments. A close correlation is found with the former, but not with the latter. Both of these studies used the 1984 **SIPP** data.

⁵³ These studies incorporate **three** separate health limitations indices, rather than a single interacted component, as in Johnson and Lambrinos (1985).

Although these studies seem to suggest that prejudice may be a contributing factor to wage differentials, it is not clear how reliable the measures of prejudicial intensity are. These results should be interpreted with caution.

Baldwin, Flacco, and Zeager (1991) use the 1984 SIPP data to investigate the effect of employer uncertainty on discriminatory wage differentials. Employer uncertainty could result in “statistical discrimination.” This occurs when employers make assumptions about a disabled individual’s productivity based on the average productivity of disabled workers. Most employers do not have the experience or the information necessary to judge the potential productivity of a disabled individual. Baldwin, Flacco, and Zeager found that increased employer uncertainty about the capabilities of disabled workers results in lower wages.

4. Workplace Accommodation by Employers

The Americans with Disabilities Act of 1990 (ADA) prohibits job-related discrimination against persons with disabilities and requires that reasonable accommodation be provided for persons with disabilities unless the difficulty or expense of accommodation would result in undue hardship for the firm. On the face of it, the prohibition of discrimination on the basis of physical or mental impairment and the mandate for employers to accommodate workers with disabilities would be expected to remove significant barriers to employment for persons with disabilities. However, evaluation of the ADA from a theoretical economic perspective suggests that there may be difficulties in the implementation of such a mandate. In this section, we review the few empirical studies of workplace accommodation and discuss some of the economic issues associated with the implementation of the ADA.

Several authors have speculated about the future impact of the ADA. Chirikos (1991) provides a discussion of the importance of costs of accommodation and how they may influence the employment opportunities of persons with disabilities. The demand for workers with disabilities will depend on the extent to which their productivity balances the costs of their accommodation. Available data on the costs of accommodation has shown the costs to be quite small.” Chirikos, however, cautions that this will not necessarily be the case under the

⁵⁴ A 1982 study of the Rehabilitation Act conducted for the Department of Labor (Berkeley Planning Associates, 1982) found that for firms who have made accommodations the costs were low: 51 percent

ADA. If the ADA leads to an increase in the supply of workers with disabilities, then the severity level of disabling impairments would be expected to rise, resulting in a rise in costs of accommodation. He also suggests that wage discrimination may have allowed employers to shift some of the incidence of the costs of accommodation to the workers themselves. The positive impact of the ADA on employment of persons with disabilities may be mitigated by the higher costs of accommodation and by the reduced ability of employers to shift accommodation costs through wage discrimination.

Burkhauser and Daly (1994a) also highlight some of the potential limitations of the ADA in promoting employment of persons with disabilities. They maintain that few of those on the DI and SSI disability rolls would return to work as a result of the ADA, citing evidence from other studies which suggest that once individuals reach the point where they have applied for federal disability benefits, it is unlikely they will return to work. The ADA offers more hope of successful intervention before the worker leaves the labor force, when a health condition first begins to limit work, than it does in returning individuals who have left the labor force to work. Burkhauser and Daly also report data on complaints alleging discrimination under Title I of the ADA filed with the EEOC in 1992 and 1993 that suggest the ADA may be more effective in ensuring continued work with a current employer than in obtaining a job with a new employer. The majority of charges were brought by workers against their current employer; only 13 percent were made by persons with disabilities seeking new employment. The most common reasons for the charges involved discharge and failure to provide reasonable accommodation.

While the success of the ADA in returning to the labor force individuals who are already receiving disability benefits is questionable, there are still a significant number of individuals for whom the ADA may have an impact. About 65 percent of men and 52 percent of women who report a work limiting health condition do participate in the labor force. The majority of working age persons with disabilities do not participate in the federal disability programs and could potentially benefit from the ADA (Burkhauser and Daly, 1994b).

reported that the accommodations provided were costless; 31 percent reported costs between \$1 and \$600; and only 1.6 percent reported accommodation costs of \$20,000 or more. The data for this study come from a mail survey of 2,000 firms with a response rate of 16.9% (Collington, 1966). When interpreting these findings it should be noted that low cost accommodations are probably those most likely to be implemented. The costs associated with observed accommodation do not necessarily represent the costs that would be observed if the prevalence of accommodation were to increase.

Another recent issue raised regarding the effectiveness of the ADA is whether or not it has truly helped individuals with severe disabilities. Critics base their opinion on statistics showing the types of impairments cited in ADA complaints filed with the EEOC. The most common impairment is back problems (19.5 percent), followed by neurological impairments (12.1 percent) and emotional/psychiatric impairments excluding mental retardation (11.4 percent) (Mathews, 1995). The implication is that the preponderance of back and psychological impairments indicates that persons with "true disabilities" are not benefiting from the ADA. This criticism may be unwarranted because the statistics give no indication of the severity of particular conditions. In addition, simply examining the characteristics of complaints filed with the EEOC provides very little information about the overall impact of the ADA.

The actual impact of the ADA on employment of persons with disabilities may not be evaluated for some time due to the fact that it became fully operational in 1992, and no currently available national surveys have collected data related to disability and work accommodation since 1992. A few studies, however, have examined issues related to work accommodation and the labor force activity of persons with disabilities. These studies provide information regarding the state of work accommodation activities prior to the passage of the ADA and offer insights as to how accommodation may impact the labor force participation of persons with disabilities.

A study conducted by Louis Harris and Associates provides information on potential barriers to employment for persons with disabilities from the firm's perspective prior to the passage of the ADA (Louis Harris and Associates, 1987). Approximately 900 managers and executives from 900 firms were surveyed regarding their employment practices with respect to workers with disabilities. Most of the managers interviewed believed that the average cost of employing a disabled worker is about the same as the cost of a non-disabled worker and that making accommodations for employees with disabilities is not expensive. About half of the executives interviewed claimed that their company had made accommodations for disabled employees. On the downside, a majority of managers interviewed believed that discrimination was an important barrier to the employment of disabled workers.

The Louis Harris and Associates study also found that small firms were less likely to make work accommodations, to have formal disability management programs or hiring policies,

or to keep employees after the onset of disability. This may be the case, as another study suggests, because small firms do not have trained staff to manage work accommodations, they have limited opportunities for shifting workers with disabilities into other jobs in the company, and they often do not have generous health or disability benefits to offer workers. On the other hand, studies have shown that small firms are more likely to hire “high risk” job candidates and therefore may be an important source of work and training opportunities for persons with disabilities (Drury, 1990). Indeed, a comparison of disabled workers in large and small firms using data from the 1984 **SIPP** shows that a somewhat higher proportion of disabled workers in small firms (less than 500 employees) had ever held a previous job than was the case in large firms (13 percent versus 9 percent). In addition, a smaller percentage of workers with disabilities in small firms had ever received any job training (25 percent) compared to disabled workers in large firms (36 percent) (Berkeley Planning Associates, 1989).

The issue of whether accommodation reduces the **risk** of a worker leaving his employer and increases the length of time the individual will remain at his job following the onset of a work limiting health condition is examined in a recent study by Burkhauser, Butler, and Kim (1994). Using data from the 1978 Survey of Disability and Work, the authors estimate the risk of leaving an employer after onset of disability as a function of whether or not accommodation is provided, the expected replacement rate of DI benefits, wealth, job tenure, demographic and occupational characteristics, and the health condition causing **impairment**.⁵⁵

In their sample of males who became impaired while employed, 30 percent reported having received accommodation by their employer following onset of the work limitation. The results of their analysis indicate that accommodation significantly reduces the risk that an individual will leave his job following the onset of a limiting health condition and, all else being equal, increases job tenure by approximately five years. The authors estimate that among workers who are not accommodated, 75 percent will leave their job **within** three years of onset of the limiting health condition. Among those who are accommodated, it takes nine years for 75 percent to leave their employer; 99 percent of those not accommodated have left by that time.

⁵⁵ The authors used hazard analysis to obtain their results.

While Burkhauser et al. provide evidence that accommodation may be effective in keeping persons with disabilities in the labor force, limitations of the study should be noted. First, the data do not allow the authors to adequately control for the severity of the work limitation in the model. **It** is likely that those with the least severe limitations (those easiest to accommodate) are the ones receiving accommodation and are also more likely to remain working even in the absence of accommodation. In addition, workers who are accommodated may be those who are highly valued by employers because of their productivity. Higher productivity usually implies higher wage levels, **hence these** workers will have **greater** opportunity costs associated with exiting the labor force and may therefore be **less** likely to leave regardless of accommodation. These factors may bias the results in favor of larger impacts of accommodation on job tenure. Second, the authors restrict their analysis to the job tenure of males whose onset of impairment occurred after age 20 and who were employed at the time the work limitation occurred. The results may not be generalized to all persons with disabilities and only demonstrate the effect of accommodation on the duration of employment in a particular job, rather than the duration of labor force participation following the onset of impairment.

Using data from the 1991 Health and Retirement Survey, Daly and Bound (1994) present a descriptive analysis of men and women who continued to work after the onset of a health **impairment**. The authors focus on the adaptations and accommodations allowed to workers, comparing **those** who changed jobs to **those** who remained with their employer following the onset of the limitation. In their sample, two-thirds of those who continued to work remained with their employer, while one-third changed employers. Their results show that those who changed jobs were significantly more likely to experience a reduction in job demands than those who remained with their **employer**.⁵⁶

Comparison of those that remained with their employer and those that changed employers following onset of Impairment shows a significantly **higher prevalence** of work accommodation among those that remained with their employer. About 33 percent of those

⁵⁶ Job demands include physical effort, lifting heavy loads, stooping, kneeling, or crouching, **good** eyesight, intense concentration, keeping a pace set by others, or skills in dealing with people. Individuals are classified as having a job with a particular demand if they report they perform the task all, almost all, or most of the time.

who remained with their employer received accommodation. Among men, less than 15 percent of those who changed employers were accommodated, but among women who changed employers, 25 percent reported that they received accommodation. Looking at the types of accommodations provided, no clear patterns were present among those who changed employers. Among those who remained with their employer, changes in job duties, assistance with the job, changes in the work schedule, and more frequent breaks were the most common forms of accommodation reported.

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CHAPTER THREE
THE USE OF PERSONAL ASSISTANCE SERVICES
BY WORKERS WITH DISABILITIES

A. Introduction

This chapter provides information on the use of personal assistance services (PAS) by workers with disabilities. Personal assistance services can be characterized generally as help from another person to accomplish the basic activities of daily living (**ADLs**), including mobility, eating, dressing, bathing, and toileting, and the instrumental activities of daily living (**IADLs**) such as cleaning, preparing meals, and shopping. Personal assistance services can also encompass communications, help in commuting to work, and completing job-related tasks.

PAS can affect the amount of labor supplied by persons with disabilities by assisting them to access the work force. In theory, the more available PAS are to a person with a disability, the greater the chance that she or he will be able to work.

PAS can help a person gain and maintain employment in one of two ways. First, PAS can be used to directly help the person with a disability meet job requirements. For example, a specialized transportation service may help a person in a wheelchair get to and from the office or a nurse's aide may come to the office to help the individual use the restroom. PAS can also help an individual with a disability work by freeing up time. Disabilities steal time because they increase the time needed to perform many tasks. For example, while an individual in a wheelchair may be able to clean his apartment, it would probably take significantly longer for him to do it than it would for a person who was not in a wheelchair. The extra time it takes to perform basic daily tasks may act as a barrier to working. If the man in the wheelchair had someone to come in and clean his apartment for him, that time would then be available for him to do other activities such as working.

1. Overview of the Chapter

We provide a bullet-point summary of major findings, issues for future research, and potential data and methods to be used for this research in this introduction. Following the introduction, we present findings on the use of PAS by workers with disabilities. These

findings provide a description of the characteristics of the workers with disabilities and their places of employment. Specifically, work force participation, employment settings and earnings are reviewed. **We** then describe potential research questions to be related to the use of PAS and data sources that could be used to analyze them.

Next, we review the major factors that affect a workers access to PAS. The factors reviewed are financing issues (public program restrictions, employer accommodations and tax subsidies); delivery system issues (issues surrounding who controls the care and who provides it); and regulatory issues, specifically the American with Disabilities Act (ADA). We then describe potential research questions related to access to PAS for workers, and data sources that could be used to address them.

We have included three appendices. The first provides a brief description of what is known about PAS in general. The second describes the potential data sources identified. The third lists all the PAS related items from the surveys identified.

2. Summary of Findings

Our major findings related to PAS and employment are outlined below.

Use of PAS by Workers

- In our review of existing research, we found that very little is known about the use of personal assistance services by workers with disabilities, and even less is known for those with severe disabilities. We cannot **determine** the prevalence of the use of PAS in the work place or if the provision of PAS at home enables people to join the work force. We have difficulty assessing how many people are using personal assistance services, even on a national level.
- The research to date has not adequately addressed the effectiveness of potential public policy changes. The research we found had been conducted or commissioned by a small number of research organizations that also have an advocacy orientation. Through no fault of the researchers, these analyses are hampered by insufficient sample sizes, unrepresentative samples, inadequate measures of disability, and limited detail on personal assistance services required and received.
- The information available suggests that a relatively small proportion (less than one million) of the working-age population needs PAS. Data from the **1990/1991** Survey of Income and Program Participation (SIPP) revealed that 2.6 percent of the working age population or 3.7 million people (between 21 and 64) needed personal assistance with at least one activities of daily living (**ADLs**) or instrumental activities of daily living

(**IADLs**) (McNeil, 1993). Of these people, 20.6 percent, or 763,000, were employed. Analyses of data from the 1967 National Medical Expenditure Survey (NMES) conducted by Lewin-VHI revealed that 1.3 percent of the population under 65 needed assistance or **supervision** with one or more of their **ADLs** (see Appendix 1 for a breakdown of PAS utilization in the general population).

Access to PAS Among Workers

- For workers that do receive formally provided personal assistance services, funding is not likely to **be** provided by public sources (Litvak, 1994). Most publicly funded programs that provide PAS exclude people who could be employed, for several reasons. First, many public PAS programs have strict means-testing that acts as a disincentive to work. Working may mean that the person with a disability would have to purchase services on their own (Nosek, 1990). **Second**, some PAS programs, such as those funded by the Older Americans Act, require that the PAS recipient be elderly. This may partially explain why the PAS population tends to be concentrated more among the elderly (Litvak, 1991). Elderly PAS users are probably much more likely to be retired and not working. Third, many programs require strict limitations in activities of daily living (**ADLs**) and instrumental activities of daily living (**IADLs**) or that the person be at risk for institutionalization, so only those with very severe disabilities are eligible. Such persons are the least likely to be employed (Louis Harris & Associates, 1986, 1994; McNeil, 1993; World Institute on Disability and Rutgers University Bureau of Economic Research, 1990).
- Public programs that do minimize work disincentives allow: (1) recipients to employ their own assistants, (2) encourage people to obtain management training through Independent Living Centers, (3) allow for **24-hour-a-day** services, and (4) have no income limit or have an income, asset and allowable deduction limit generous enough to encourage individuals to work.
- Massachusetts and Pennsylvania have programs that provide PAS which attempt to eliminate work disincentives. Massachusetts allows for a Medicaid buy-in, that is individuals with income above the financial eligibility criteria can purchase Medicaid coverage on a sliding fee scale. Pennsylvania, which uses Social Services Block Grant Funds to support PAS, does not impose an income or resource eligibility criteria (poverty level enrollees pay no fee and others pay on a sliding scale).
- We know **very** little about the extent to which private employers compensate for this lack of publicly funded assistance by providing assistance themselves. Two studies suggest that a substantial number of companies make some kind of accommodation for people with disabilities (Berkeley Planning & Associates, 1981; Louis Harris & Associates, 1987). However, we do not have information on what types of personal assistance were being provided, who is providing this assistance, who pays for it, and what role it plays in allowing the person to enter and remain in the work force.

- The recipient's ability to pick and choose which services will be provided may determine how successful the services are in assisting the person to work. Persons with disabilities pay for much of their assistance themselves or receive specified services through public programs which are often means-tested. Although cash benefits or vouchers provide ultimate consumer control (a major theme among groups within the disability community) very few public programs offer participants the opportunity to receive cash benefits (Litvak, **1991a**). Several European countries provide cash benefits that give workers with disabilities greater discretion for the use of PAS to assist in their employment. Issues regarding accountability for and efficient use of public funds are often raised as reasons to limit consumer control.

Proposed Policies to Facilitate the Use of PAS

Several policies to facilitate the use of PAS related **to employment** have been proposed or implied in the literature, including:

- Removing or reducing income based eligibility restrictions in current PAS programs or building work incentives into PAS programs.
- Increased monitoring of employers' compliance with the ADA.
- Greater outreach to the population with disabilities to inform them of the availability of PAS and the implications of the ADA.
- Alternative financing mechanisms that allow greater consumer control (e.g., providing tax credits or vouchers for people with disabilities for the purchase of PAS).
- **Lifting** restrictions on publicly financed programs that require PAS to be provided in the home.

In order to determine whether these policy options should be pursued, basic questions concerning the role of PAS in encouraging employment need to be answered first.

3. **Research Questions**

The four key policy-relevant areas of research that need further exploration are:

Access to PAS

- **Who is currently using services and what services are they using?** Data on workers currently using PAS needs to be pursued so that the current use of PAS by workers can be better understood.
- **What are the barriers to work imposed by some of the public funding restrictions for PAS and how important are they?** As highlighted above, some research has documented barriers imposed by public programs for the provision of PAS to workers. Further empirical analyses could assist in specifying modifications to the programs.
- **To what extent are employers providing PAS through ADA accommodations or other policies?** We lack information on how the Americans with Disabilities Act (ADA) has altered the provision of PAS in the work place. We do not know if the ADA prompted employers to provide employees with PAS.

Targeting the Availability of PAS

- **Who would benefit most from PAS in terms of increased ability to work?** Research to date has not identified if there are certain subgroups of people with disabilities for whom the provision of PAS is effective at facilitating work and if there are other subgroups for whom PAS does not facilitate work.

The Delivery of PAS

- **Do workers receiving consumer controlled PAS have an increased ability to work, relative to those receiving agency directed services?** Although a program that provides a consumer with control over the purchase of PAS may provide the individual with the mix of personalized services that allows him or her to work, to the best of our knowledge, the importance of such control has yet to be empirically demonstrated.
- If PAS is provided in the work force, is it provided by people who are specifically paid to provide these services or is it provided by coworkers or informal sources? Having coworkers providing PAS in the work place raises issues about: 1) the quality of care; 2) whether the coworker has these duties reflected in his or her compensation and have evaluations based on performance of the duties; and 3) the effect on the professional relationship between the person receiving and the person giving help. Research is needed to assess whether more formal systems of paid PAS, with providers from outside the workplace, are effective at providing assistance that is needed and not able to be scheduled.
- **What types of PAS and in which setting, at home or at work, are most likely to enable labor force participation?** Another delivery issue concerns the impact of delivery site, at home or at work, on whether an individual with a disability is able to work. Assistance at home that may free up an individual's time to pursue other activities, may be just as effective in promoting work as assistance at the job site, but there is no evidence available. Also, there may be issues of monitoring that might favor

support for job site services at over services at home, especially if the services are paid for by the employer. We have not found information on these or other issues related to delivery site in the literature.

The Effectiveness of PAS

- ***Among workers that receive PAS, what is the extent to which they benefit (increased work hours, increased productivity, higher earnings, greater life satisfaction)?*** We do not know the effectiveness of the provision of PAS for workers with disabilities. Demonstrating that PAS increases productivity, earnings, hours able to work, or quality of the recipient's life is essential to obtaining backing for programs that support PAS. Further, the extent to which public support for PAS would pay for itself by reducing reliance on other public support and by increasing income and other taxes paid by recipients is not known.
- ***is PAS the most cost-effective method of providing assistance or are other intervention more appropriate (e.g., assistive technologies or training)?*** The tradeoffs between PAS and other source of assistance has not been documented. This issue is developed further in Chapter V.

B. Potential Methods and Data

There are two basic methodologies for addressing the research questions outlined above. Direct and indirect answers may be provided using quantitative analyses (i.e., tabulations, regressions, time series analyses, and intervention studies) in some cases, but available data for some of the issues are limited for this purpose. Case studies can also be used to supplement these quantitative analyses or to address questions not amenable to quantitative research.

In our review, we catalogued the data available to address the research questions. These include:

- (1) the Survey of Income and Program Participation (SIPP);
- (2) the National Health Interview Survey (NHIS);
- (3) the National Medical Expenditure Survey (NMES);
- (4) the Current Population Survey (CPS);
- (5) The Medicare Current Beneficiary Survey (MCBS)
- (6) the Human Services Research Institute's New Models for the Provision of Personal Assistance Services (HSRI • PAS);

- (7) the International Center for Disability/Louis Harris & Associates survey (ICD); and
- (8) the National Organization on Disability/Louis Harris & Associates survey (NOD).

Two data sources we identified provide information or listings of programs/resources offering PAS: (1) Job Network; and (2) WID Public Program data. Other data sets that may be made available in the future or are currently or about to be collected include: (1) **NHIS** 1994, (2) the Social Security Administration (SSA)-Rehabilitation Services Administration (RSA) “datalink”, and (3) the evaluation of the Medicaid Community Supported Living Arrangements (CSLA) program. These data are described in Appendix IV.2 and questions related to PAS are listed in Appendix IV.3. Examinations of current state and county programs that provide PAS and AT to individuals with disabilities could provide new sources of data and information. For example, the Massachusetts Medicaid buy-in program and the Pennsylvania PAS program warrant further investigation.

C. **Use of PAS by Workers with Disabilities**

The relationship between the use of personal assistance services and employment has not been well documented. Most studies focus on in-home PAS use. In fact, we were not able to locate any literature that specifically addresses who uses PAS to enable work, whether PAS are provided in the workplace, and if so, what services are provided and who is the provider. Rather than discussing how PAS may be beneficial to PAS recipients, such as by allowing them to work, the literature in this area focuses on how the availability of PAS impacts the extent to which family members are free of PAS obligations, thereby increasing their capacity to work or keep house (e.g., Batavia, 1991; Nosek, 1993).

Despite the lack of direct empirical evidence, there are a number of reasons to believe that the population using PAS has little overlap with the population of workers with disabilities. First, many public PAS programs have strict means-testing and restrictions on covered services may act as disincentives to work. In many states, gaining competitive employment would mean that the PAS user would have to purchase services on their own (Nosek, 1990). Second, the PAS population is concentrated among the elderly (Litvak, 1991): relative to PAS users in general, elderly PAS users are probably more likely to be retired and therefore not working. Furthermore, some public PAS programs, such as those funded by the Older

Americans Act, require that the program enrollees be elderly. Third, the PAS population tends to include individuals with the most severe disabilities, relative to the entire population of individuals with disabilities, (Louis Harris & Associates, 1986). People with greater impairments are less likely to be employed than those with less severe impairments (Louis Harris & Associates, 1986, 1994; McNeil, 1993; World institute on Disability and Rutgers University Bureau of Economic Research, 1990). In addition, many programs require strict limitations in activities of daily living (**ADLs**) and instrumental activities of daily living (**IADLs**) or that the person be at risk for institutionalization.

In this section, we provide an overview of the limited research which has been conducted on the use of PAS by (potential) workers with disabilities. We first report on the work force participation of PAS users, and then discuss what is known about the employment settings and earnings of workers who use PAS. *We conclude this section with a detailed discussion of related research gaps and potential approaches for addressing these gaps. The next section of this chapter provides an **overview** of factors which impact the extent to which (potential) workers with PAS needs have access to PAS.

1. **Work Force Participation of PAS Users**

Work force participation among the working-age population with disabilities is low, but among sub-groups of workers with disabilities PAS use may be high. The WID and McNeil studies suggest that 21 percent of the working-age- population with PAS needs was employed full or part-time. The Kimmich and Godfrey study (1991) found that among relatively new PAS users, 21 percent worked in paid positions. In a longitudinal follow-up study conducted over the next two years, the percentage in paid positions increased to 26 percent.

Only a small minority of employed individuals with disabilities needs personal assistance with **ADLs** or **IADLs**. Using data from the **1991/1992 SIPP** (McNeil, **1993**), we were able to estimate that about 0.7% of all workers, 5.4% of all people with a disability and over one fourth of people with a severe disability needed personal assistance with an ADL and/or

⁵⁷ Working-age was defined as between age 18 and 84 for the WID study and between age 21 and 84 in the McNeil analysis.

IADL. We were not able to locate any data on the percentage of workers with disabilities who actually received PAS.

One study suggests that while PAS are not the deciding factor determining which persons with disabilities work, the lack of availability of these **services** may be keeping many out of the work force. Ninety-three percent of full-time workers with disabilities did not attribute their employment status to having an interpreter or personal care attendant (Louis Harris & Associates, 1994). However, nearly one-fourth of persons with disabilities who were not working full-time said that they needed the help of a personal assistant to get to work or maintain full-time employment (Louis Harris & Associates, 1994).

The extent to which PAS are a deciding factor determining whether a person with a disability works probably varies significantly depending upon the type and the severity of the person's disability.

These findings suggest that the provision of PAS targeted towards certain groups may increase work force participation. However, the Harris study only addresses attitudes and beliefs and does not examine the actual effect of PAS utilization on work force participation. The study does not and cannot address which PAS are helpful at increasing and maintaining employment and towards which populations they should be targeted.

2. Employment Settings of Workers who Use PAS

While the literature contains limited information on the employment settings of individuals with disabilities in general, its applicability to the subset of workers with disabilities who use PAS is not known. For example, one study found that competitively employed persons with disabilities appear to be in the minority among all workers with disabilities. Among workers with disabilities in the study, slightly over half were in sheltered employment, seven percent were in supported employment, and two-fifths were in **competitive positions** (Kimmich, 1991). However, the study did not report any tests of statistical significance and did not have a comparison group which might have shown how much PAS can increase employment.

3. Earnings of Workers who Use PAS

Workers needing PAS earned less than the general population. In the early **1990s**, a worker needing PAS earned an average of \$1,815 per month compared to \$1,927 for all workers. Analyses by gender showed that males needing PAS actually earned more than the average for all male workers (\$2,928 versus \$2,367) while female workers who needed PAS earned significantly **less** per month than all female workers (\$934 versus \$1,406) (McNeil, 1993). Salaries of male workers with disabilities needing PAS maybe relatively high because people with disabilities who would have low earnings do not work because of income restrictions on programs providing PAS. This suggests that income restrictions on such programs are a deterrent to employment. Another explanation may be that traditionally male dominated low paying jobs such as manufacturing production jobs, may not be feasible (or employers may not be willing to make accommodations) for people who are ADL or **IADL** impaired. The different result for women may be because women needing PAS are often able to participate in many of the traditionally female dominated fields such as secretarial work. In addition, if women with disabilities follow a similar work pattern as all women in the workforce, they may be more likely to work part-time than men. We cannot confirm this because published data on part-time versus full-time work status were not available.

4. Research Gaps and Potential Research Methods

As demonstrated above, empirical research into the intersection between PAS use and employment is limited. A better understanding of the current and potential demand for PAS among workers with disabilities will be critical for policy makers who design and target associated interventions.

Research addressing the use of personal assistance services and labor force participation will need to address the basic questions about how the two variables relate to one another, and will need to evaluate how a matrix of variables, including type of service, type of disability, demographic and workload variables, the system for the provision of PAS, and financing, relate to one another. Addressing these issues will assist policy makers in making decisions concerning the design of interventions, to whom interventions should be targeted, and how interventions should be financed. A set of key research questions are outlined below.

Descriptions of the databases discussed can be found in Appendix III-2 and the specific PAS related questions from these sources are included in Appendix III-3.

a. How many PAS users work? How many workers with disabilities use PAS?

The extent to which personal assistance services are currently used among the working population has not been adequately examined. Addressing this issue will help: (1) determine to what extent the population of PAS users and the population of persons with disabilities in the work force are mutually (2) exclusive, provide an indication of the potential of PAS to support employment, and (3) assist policy makers in targeting interventions to persons who might benefit the most.

Data sets suitable for analysis would have to contain at least one item that addresses whether the person receives personal assistance **services**, one item on whether they are employed and one item on whether they have a **disability**.⁵⁸ The following data sets meet these criteria: (1) **SIPP**, (2) **NMES**, and (3) **HSRI-PAS**. When it becomes available the **NHIS 1994/1995** will also be suitable. The **CPS** could be used to relate whether the person received disability related benefits and employment status, but could not directly assess the use of personal assistance services. A subsample could be drawn from the **MCBS**, but only employees who were receiving health insurance through their job could be identified. The annual **NHIS** core and the **ICD** data sets could provide assessments of these issues, but it would have to be assumed that all people who need help with personal care receive help with personal care. The Lou Harris and Associates **survey** data could be used if one assumes that people who are limited in certain activities receive help for them. Using a measure of need for assistance rather than a measure of actual assistance introduces a certain amount of error into any analyses that are conducted. In many cases people who need assistance do not receive it or people who are able to do **certain** tasks receive assistance anyway. A person with severe disabilities but low income who is unable to clean their house may just live in a dirty house. An employed person with a milder disability who is physically able to clean, albeit with some difficulty, may choose to hire a homemaker service. This type of result could not be revealed using a data set that only addressed need.

⁵⁸ Further information concerning employment characteristics could enhance such analyses.

b. Which groups of workers with disabilities use PAS?

The provision of personal assistance services may be more helpful in enabling some individuals with disabilities than others to obtain and maintain employment. For example, the provision of PAS may be more helpful to people with spinal cord injuries seeking employment than to people with mental retardation. Thus, it would be helpful to analyze whether PAS are being used by persons with specific impairments (i.e. spinal-cord injuries, dementia, visual, hearing, etc.). This information could be used by policy makers to target interventions to those who might benefit most and to tailor interventions for different groups.

To assess this relationship, it would be necessary to **have** a data set that met the criteria set forth in item one and have a breakdown by type of disability. The following data sets meet all these criteria: (1) SIPP, (2) NMES, and (3) HSRI-PAS. The **NHIS 1994/1995** will also be suitable. Again, a subsample of employees with health insurance could be drawn from the **MCBS** and the **NHIS '89**, ICD, and NOD data sets could **be** used if it is assumed that need/impairment equals help received.

c. How much personal assistance do workers with disabilities use?

Information on the level of assistance required by workers with disabilities to maintain employment will assist policy makers in designing interventions, particularly **any** limits on the -level of services. In order to address this issue, the basic data required to answer the questions posed under Section **II.D.I** are needed, plus a measure of the level of use. There are currently no national databases which assess the total number of hours of PAS needed by people in the general disabled population. NMES does include data on hours of paid personal assistance, but does not include information about the number of hours of unpaid PAS. "The lack of hours of PAS in **databases** is a major gap in our ability to understand the nature of the demand for PAS. We also know very little about the elasticity of this need." (Kimmich, 1991)

d. What type of PAS do workers with disabilities use?

The next step would **be** to examine **PAS** utilization by type of service provided. This will address questions about which personal assistance services are commonly used by disabled employees. For example, it could be found that almost all employees who were using

PAS were using homemaker services. If this were the case, several implications could be drawn for interventions. On the one hand, one could infer homemaker services should not be covered because they are not directly related to accomplishing job-related tasks. On the other hand, homemaker services may permit a person with a disability to engage in employment activities in which they are much more productive. Information on the types of PAS used also aids policy makers in the design of interventions.

In addition to the criteria cited for Section **II.D.1**, a data set that could assess these questions would have to have information about which type of PAS are being used or with which **ADLs** or **IADLs** the person needs assistance. The only currently available data sets found that meet these criteria were NMES and the HRSI-PAS study, both of which have very limited sample sizes. A subsample of workers with health insurance could be drawn from the MCBS. In addition, the **1994/1995** version of **NHIS** should include this type of information when it is available.

SIPP and **ICD** could be used for these analyses if one assumes that the disabled person is receiving help with all the **ADLs** and **IADLs** with which they report they need help.

- e. **What is the relationship between PAS utilization, types of services, and other demographic and workload variables among workers with disabilities?**

A better understanding of how personal assistance **services** affect employment can be obtained by determining which groups of persons with disabilities are using which personal assistance services, and the level of use. In addition, the use of PAS may vary due to factors other than type of disability.

A series of more detailed questions come out of the basic descriptive analyses of the sections above whose answers provide a better understanding of how PAS relate to employment. For example, if an analysis found that 60 percent of employed individuals with spinal chord injuries use PAS, many more questions would be raised. Additional information on types of service could address whether people with spinal cord injuries are able to maintain employment because they receive assistance with mobility. Additional detail regarding the age of those with spinal chord injuries that receive PAS and a comparison on the level of use by

age could address the hypothesis that as people with spinal cord injuries get older, they lose the upper body strength that allowed them to get around without mobility assistance.

Findings similar to the above may lead to hypotheses about under which conditions, how much, and what types of PAS are likely to **positively** affect employment. Pertinent variables include the following: age groups, sex, race, geographic location, living arrangements, family characteristics, social resources, education, personal/household income, industry, occupation, hours per week, wages, health insurance, sick leave, years of employment, absentee rates, receipt of SSI or **DI**, and support from other government programs.

These variables could also be used in regression analyses. This would help determine if an observed relationship between a service and employment is causal or due to spurious relationships with other factors.

All of the **datasets** cited include at least some of these variables. Exhibit 4 can be used to see which studies contain which variables. The next step would be to determine the descriptive statistics for each of these variables in the sub-population of employees with disabilities who use personal assistance services. All of the studies cited as being useful in item one would be useful at addressing at least some of these relationships. The major concern would be if there was a large enough subset of people within the particular cell of interest to conduct a meaningful analysis. For example, would there be enough people with spinal cord injuries who are both working and receiving mobility assistance?

D. Access to PAS for (Potential) Workers with PAS Needs: Delivery System, Financing, and Regulatory Issues

The structure of our nation's PAS system has created barriers to access to PAS for employed persons with disabilities. In many states, eligibility criteria and service limitations of public PAS programs force potentially employable persons with PAS needs to choose between participating in public programs which cover PAS services, or entering the workforce but paying for PAS services themselves. The literature suggests that the associated cost of services are prohibitive enough to prevent PAS users from working.

In the previous section, we outlined a research approach which would address the role that PAS plays in assisting persons with disabilities in obtaining and maintaining employment. This information will be critical for policy makers attempting to determine the extent to which increased access to PAS would improve the potential employability and hence productivity of the population of working aged individuals with PAS needs..

This section explores factors which affect access to PAS. Such factors include financing mechanisms (including public PAS program eligibility criteria and service limitations, and employer willingness to provide PAS), the delivery system, and the regulatory structure. It is through financing, the **delivery** system, and regulation that public policy could address barriers to and support enabling factors in obtaining PAS. We note that many of the issues related to the delivery and financing of PAS are intertwined due to public program requirements.

Unfortunately, research into these areas of PAS is generally lacking. Information on the financing of PAS primarily focuses on public programs providing PAS, which generally do not cover PAS services delivered in the workplace. An accurate picture of the sources of financing for PAS is not available. Most of the data on the delivery of PAS focuses on whether assistance is paid or unpaid, who provides the assistance (family members or professional caregivers), and the degree of control the recipient has over the provider. Research into regulatory issues for workers with disabilities in general contains some tangential references to issues for workers with PAS needs in particular.

1. **PAS Financing Issues for Workers**

The literature emphasizes that personal assistance services are primarily financed through public programs and by recipients' own resources. However, to our knowledge the associated literature contains no material directly related to the financing of PAS for workers. Given that very few public PAS programs cover work-related PAS or competitively employed PAS users, and private insurance programs do not cover PAS (Litvak, 1991 b; Litvak, **1991c**), the cost of PAS becomes a key determinant of whether competitively employed individuals can gain access to PAS, and ultimately whether PAS users can afford to work.

For publicly financed programs, a recurrent theme in the literature related to financing was the restrictions that some programs place on participants and how these restrictions act as disincentives to employment. Although we did not find any source material on employer provided PAS, we did locate limited information related to employer accommodations which are closely linked to PAS. Furthermore, although not a public program that provides services, the federal tax code provides limited subsidies to workers who use PAS (described in section III.A.3).

a. Public Program Restrictions

The literature strongly suggests that eligibility and service limitations of most public PAS programs are incompatible with competitive employment. Given that PAS are primarily financed through public programs and the personal expenditures of the recipients of PAS and their families, program limitations have a significant potential impact on the ability of workers with disabilities to receive the level of services they need in order to remain competitively employed, or to participate in these public PAS programs at all.

Research into public PAS programs attributes the programs' eligibility and **service** limitations which act as work disincentives to the funding streams which support these programs, and to the efforts of the programs' administering agencies to limit the scope of their programs. This literature demonstrates that a variety of federal and state funding streams support a diverse spectrum of public programs, which have been systematically **catalogued** by the World Institute on Disability (**WID**).

The primary sources of public PAS program funding include Medicaid, Social Service Block Grants (Title XX), Title **III** of the Older Americans Act, state funds, Veterans Administration Aid and Attendants Allowance, and Medicare. (Litvak, not dated; Litvak, **1991c**; Kennedy, 1993; WID and Rutgers University, not dated; Egley, 1994; Litvak and Kennedy, **1991a**). Some of these funding sources were developed specifically to provide PAS, while others were developed without the provision of PAS in mind, but some states included **PAS** later in order to meet the demand (Litvak, 1991 c). In 1985, states ranged from having one to six programs (with an average of three) that provide PAS (**WID** and Rutgers University, not dated). No states utilized all of the various funding streams (Litvak, **1991c**). Rather, they determined which funding streams were most compatible with each program's objectives.

The literature (Litvak, **1991c**; Kennedy, 1993; Litvak and Kennedy, 1991 b; WID and Rutgers University, not dated) focuses on addressing the impact of the disparate funding sources on these programs. These studies generally compare programs by sources of payment, and then by size, cost, services offered, service allowances, targeted population, and service mode (i.e., consumer vs. agency directed).

Eligibility criteria related to age and income attached to these funding streams preclude much of the competitively employed population from qualifying for services offered under the PAS programs they support. For example, Title III funds are designated for individuals over age 85, and Medicaid has significant income restrictions. A few states have designed programs specifically to enable the participation of employed individuals. Features of public PAS programs that create access problems for workers with PAS needs, and often act as disincentives to work force participation, generally fall into one of two categories: eligibility criteria or service limitations. We discuss each in turn below, focusing on how certain states have attempted to mitigate such work disincentives.

I. Program Eligibility Requirements

The nature and restrictiveness of eligibility requirements varies significantly by public PAS program. Eligibility may be based on income and resources, age, documented need for services, functional limitations, risk of institutionalization, presence or absence of a caregiver, or whether the disability is physical or mental. Income based eligibility requirements can be particularly restrictive for PAS users who are competitively employed.

Several studies, in fact, emphasize that the income and resource restrictions of most public programs are, “de facto work disincentives -- consumers simply cannot afford to become employed; they would lose benefits and be forced to purchase PAS privately.” (Kennedy, 1993; Litvak and Kennedy, **1991a**). We are aware of three studies (Kennedy, 1993; WID and Rutgers University, not dated; Litvak, 1994) which document such restrictions, and analyze their impact on the work force participation of individuals with disabilities. No studies estimated the number of non-employed PAS users who have not entered the labor force due to the risk of losing benefits. The 1987 NOD / Harris Survey, however, found that 57 percent of all working age persons with disabilities (not necessarily with PAS needs) not in the labor force

would lose income, health care benefits, or other benefits they were then receiving from private insurance or the government if they were working full-time.

Several other studies provide overviews of how some states have attempted to minimize the extent to which their public PAS programs include eligibility restrictions that function as work disincentives (Kennedy, 1993; Kimmich, 1991; Litvak, 1991 a; Litvak, 1991 c; Degener, 1991). These studies report that work-oriented PAS programs “**either** have no income limit or have an income, asset and allowable deduction limit generous enough to encourage individuals to work. Most have some sort of sliding fee scale or state subsidized buy-in arrangement to existing programs funded by Federal sources, so that recipients pay part of the costs.” (Litvak, **1991a**)

Work oriented PAS programs, which tend to have extremely small and static caseloads, are usually administered by State vocational rehabilitation agencies using state funds (Litvak, **1991a**; Kennedy, 1993). Two notable exceptions are the work-oriented PAS programs administered in Massachusetts and Pennsylvania. The Massachusetts Common Health program offers a state subsidized Medicaid buy-in, which enables workers with PAS needs to purchase coverage for PAS from Medicaid at a relatively low cost (Litvak, **1991a**; Kennedy, 1993). Those not eligible for Medicaid pay a sliding fee scale to enroll in the Medicaid PAS program. The state bears the remaining cost of services. (Litvak, **1991a**).

In contrast, Pennsylvania’s work-oriented program, called the Attendant Care Services (ACS) Program, is not an entitlement program. Rather, the State uses Social Services Block Grant funds (Title XX); therefore enrollment is limited according to the amount of appropriated funding. With a current budget of \$22.2 million, 2,059 individuals (178 of whom are employed) are enrolled in the program. In an attempt to remove all work disincentives, the State has not imposed income or resource eligibility criteria. Rather, enrollees with incomes at or below 100 percent of the federal poverty level pay no fee; others contribute on a sliding scale. There is a significant waiting list for this program (personal communication with Jeanne **Howley**, March 1995).

Other states attempt to mitigate income barriers to publicly funded PAS for potentially employable PAS users through Section 1819 of the Social Security Act. According to Section **1819**, Supplemental Security Income (SSI) recipients who receive publicly funded PAS

benefits covered under their state's Medicaid program and who start working are allowed to maintain these benefits at no cost to the consumer until their earnings exceed the value of these benefits (Kennedy, 1993; Roth, 1,990). Employed **SSI** recipients can also deduct medical and/or disability related expenses from their income in determining continued eligibility for SSI. According to two experts (Doug Martin, Robert **Griss**), this work incentive has not **achieved** its full potential effect due to limited awareness of this provision among PAS users who are potentially employable and are currently **SSI** beneficiaries.

ii. Restrictions In Services Covered by Public PAS Programs

Several studies discuss **service** limitations across the range of public PAS programs (**WID** and Rutgers University, not dated.; Kennedy, 1993; Kennedy and Liak, 1991; Litvak, 1994). These studies focus primarily on demonstrating the variability across programs in the **types** of services covered, amount covered (i.e., number of hours per week), restrictions on times during which services can be delivered, and restrictions in the types of caregivers that can be reimbursed. Many of these service limitations prevent individuals with PAS needs from engaging in competitive employment.

For example, one study that analyzes PAS programs in four sites (covering a total of 10 PAS programs) finds that, "in several of the PAS programs studied, there was an implicit or sometimes explicit disincentive to work. In one program, hours of assistance had a ceiling, making it difficult to stretch the assistance beyond the basic morning and evening personal care needs. In many other programs, personal assistants were discouraged or even forbidden from providing transportation or accompanying the consumer outside the home.* (Kimmich, 1991). This study found that the major barriers to employment noted by 88 enrollees of these public PAS programs were the need for transportation (22' percent), the need for personal assistance on the job complicated by the limited hours of paid assistance and by agency rules (22 percent), and fear of losing benefits (18 percent).

⁵⁹ The level and nature of PAS needed to enable employment probably varies significantly by individual. While restricting service packages to a point where PAS is not covered beyond basic morning and evening personal care needs will not be insufficient to enable employment for all individuals with PAS needs, it could significantly restrict the subset of individuals for whom a public PAS program's service package is sufficient to enable employment,

Another researcher argued that, “only a handful of programs provide PAS to **people** who work, and even these do not allow the assistant to accompany the individual with a disability on the job.” (Litvak, 1994) This researcher also notes that most programs do not allow the attendant to provide PAS outside the home except for medically-related trips.

A third study, which focused on work oriented PAS programs, analyzed differences in how these programs structured their service limitations in order to minimize work disincentives. This study found that in 1991, 14 states had work incentive programs which only accepted people between the ages of 18 and 80 years old who worked a specified minimum number of hours. The programs tended to be small, generally covering fewer than 100 recipients. The authors identified one prominent exception. In Washington state, the Employed Disabled Chore Service Program served 9,900 people.

The major features of these programs that reduced work disincentives included: 1) allowing recipients to employ their own assistants; 2) encouraging people to obtain management training through local Independent Living Programs; and 3) allowing for 24 **hour-a-day** services. A significant limitation remaining in many of the programs was the lack of allowance for services outside the home or for child rearing. (Liak, **1991a**)

Our supplementary research into Pennsylvania’s work-oriented PAS program revealed that covered services are not subject to significant restrictions. This program allows beneficiaries to act as the employers of their assistants, and they may receive services in the workplace. Furthermore, the number of hours covered per week for individual clients are not subject to restrictions -- limits are determined on a case-by-case basis depending upon need. Rather, each of the 16 contractors who provide the services can deliver a maximum average of 40 hours per week per client of services (personal communication with Jeanne **Howley**, March 1995).

A fourth study identified PAS programs in 19 states in 1990 which encouraged users to work (Litvak, **1991b**). This study profiled program eligibility requirements and covered services, but did not analyze, evaluate, or compare programs; nor did it provide information on funding sources used.

b. Employer Accommodations

Our review of the literature indicates that the extent to which employer efforts compensate for limitations in public PAS program is not well **understood**.⁶⁰ We did, however, locate three studies that specifically addressed employer accommodations for persons with disabilities, and included some information on employer provision of PAS.

Information in the first study is limited to anecdotal accounts of employer efforts to provide PAS. (Liak, 1994) Based on **interviews** with experts in the field, this study found that some employers hire an employee specifically to perform PAS tasks, particularly in some situations. Researchers found that, "this approach tends to reduce the costs of PAS, but its cost effectiveness is dependent upon a number of employees who need PAS being concentrated in a single workplace or in locations close to each other." This study also found that the extent of PAS which employers are willing to provide to an employee probably varies according to the value of that employee to the organization; and that people with disabilities frequently pay out-of-pocket for an assistant, either a co-worker or someone from outside the organization. Workers who need assistance with toileting **or** eating in particular may need to obtain services in addition to those provided by their employers: under the ADA, it is ambiguous whether toileting and eating are considered work related or personal needs.

The second study, the 1987 ICD **Survey** conducted by Louis Harris and Associates for the ICD-International Center for the Disabled, found that of a sample of 145 firms which had made accommodations for workers with disabilities, 23 percent had provided readers or interpreters to help blind or speech and hearing impaired workers; and six percent had had an association with independent living centers (this figure is only three percent among those businesses surveyed that employed only 1 O-49 persons).

⁶⁰ The literature on international PAS programs is far more explicit in terms of the connection between public PAS programs and employer efforts to provide PAS. For example, one study which specifically characterizes the extent to which PAS programs of certain nations facilitate employment among program participants (Dengener, **1992**), reports that in Sweden, employers have the duty to adapt working conditions to the needs of employees with disabilities. Employers who hire workers with disabilities receive subsidies from the State; in the beginning of the employment relationship these subsidies amount to 100 percent of the employment costs and gradually disappear over the next few years. A relatively new addition among the list of accommodations is personal assistance for individuals with disabilities who need practical assistance in a work situation. The person assisting may be another employee or someone outside the firm.

The third study was conducted by the Berkeley Planning Associates (BPA) and was based on a **survey** conducted in 1981 (BPA, 1981) of employers contracting with the government. These employers were subject to section 504 of the Rehabilitation Act of 1973, which the employers to “take affirmative action to employ and advance in employment qualified handicapped individuals...”. Section 504 had some provisions which are similar to provisions of the Americans with Disabilities Act. The study has limited utility because it was conducted almost fifteen years ago and prior to the passage of the ADA; and also because it focuses on a small subsection of employers (private sector employers contracting with the federal government). This study suggested that it was not uncommon for employers subject the Rehabilitation Act to make alterations for employees with disabilities. Of 367 responding firms, 65 reported providing transportation or other mobility assistance while on the job; 177 reported assigning tasks to other workers; and 362 reported orienting supervisors and coworkers to provide necessary assistance.

In another study somewhat related to employer accommodation, researchers from Berkeley Planning Associates analyzed 1984 **SIPP** data for the entire population of individuals with disabilities (PAS users and others) focusing on onset of disability for the National Rehabilitation Information Center (NARIC) (**Drury, 1990**). While this analysis is of limited relevance to our study because it does not focus specifically on workers with disabilities who need PAS, it does provide some information about the extent to which employers may be willing to make accommodations for workers with disabilities in general (either provision of PAS or assistive technology).

The **NARIC** study found that a much larger proportion of the individuals with disabilities who are in the small business work force was hired after they had become work-limited; 65.5 percent, versus 39.9 percent for large firms (Exhibit **III.D.1**). This could be because smaller firms are at least as willing as large firms to hire individuals with work limitations, or because employees in large firms are much more likely to remain with their employers after becoming work limited or both. This study also reports results from statistical analysis of the 1964 **SIPP** data, and finds that “employment in a larger firm contributes to retention after a disability even when the effects of tenure, time disabled, age, sex, earnings, and working hours are held statistically constant.” (BPA, 1988; Drury, 1990).

Exhibit III.D.1

Work-Limited Private Sector Employees, Aged 16-72 Timing of Onset of Disability by Size of Firm

Onset of Disability	Small Firms (1-499 Employees)	Large Firms (500+ Employees)	All Work- Limited
Disabled before working age	14.2%	12.6%	13.6%
Disabled when not employed	16.1%	0.5%	13.2%
Disabled in earlier job	35.3%	10.8%	29.2%
Disabled in current job	34.5%	60.1%	44.0%
Total	100.0%	100.0%	100.0%

Source: Berkeley Planning Associates, reported in "Labor Turnover and Worker Mobility in Small and Large Firms, Final Report to the U.S. Small Business Administration, 1988.

c. Federal Tax Subsidies

Currently, the Federal tax code provides limited subsidies to individuals who bear the costs of their own PAS at work (Litvak, 1994). Under Section 67(d) of the internal revenue code, impairment related work expenses incurred by **workers** with disabilities in order to perform their jobs are tax deductible, without regard to the threshold levels that ordinarily apply to the deduction for employee business expenses. The IRS defined impairment related work expenses refer to attendant care services at or in connection with the individual's place of work. This deduction provides potentially significant subsidies for upper income workers who are more likely able to afford PAS and also have higher marginal tax rates. The deduction provides less relief to persons with disabilities who have low or middle income.

2. PAS Delivery System Issues for Workers

issues related to the delivery system for PAS include who provides PAS (family members, coworkers, or paid assistants), the qualifications and training of the providers, whether the provider is associated with an agency, and whether assistance is provided at work or in the home. We found no literature specifically addressing these issues for workers with disabilities in the United States. Furthermore, research into PAS delivery issues focuses, to a large extent, on the advantages and disadvantages of consumer-driven PAS, a model of service delivery which has significant potential implications for the ability of PAS users to engage in competitive employment. This body of literature does not, however, evaluate the impact of the shift to consumer driven PAS on the employability of associated program participants.

Consumer-driven PAS refers to a model of service delivery implemented by an increasing number of public PAS programs in which the PAS user controls the delivery of services that are covered by the PAS program in question. In many consumer driven PAS programs, program enrollees may choose to be the official employers of their assistants. Traditionally, the delivery of services under public PAS' programs has been directed by : agencies.

The literature characterizes how the role of PAS in the life of an individual with a disability can be very different under consumer-driven as opposed to agency directed public PAS programs, focusing on issues such as consumer control, rights, quality, cost, dignity and risk (Nosek, 1990; Litvak, 1991 b; Kennedy, 1993; Kapp, 1990). The literature emphasizes that PAS users in consumer-driven PAS programs have generally obtained greater control over advertising, recruiting, screening, hiring, training, supervising, and firing assistants (Litvak, 1991 b). While one study indicates that generally public PAS programs designed to reduce work disincentives allow recipients to employ their own assistance (Litvak, **1991a**), no research has evaluated the extent to which the increasing prevalence of consumer driven public PAS programs has enabled participants in publicly funded programs to seek work-related PAS.

The research literature also fails to discuss the impact of providing cash benefits as opposed to defined services packages on the ability of PAS users to work, despite the fact that such a system provides complete flexibility to program beneficiaries who wish to work, due to the lack of restrictions placed on covered services, type of caregiver, and delivery setting (e.g., in-home, in-workplace). For example, one study indicates that **"the** Veteran's Administration Aide and Attendant Allowance, and six states which supplement SSI checks for those needing attendant services, are the prime examples of voucher programs in the United States." However, although PAS recipients covered under these programs are "totally in control of their own services" and may hire family, outsiders or agency providers to deliver services, the study does not assess the impact of these programs on the ability of **PAS** users to work.

Other nations are increasingly offering cash benefits as an alternative to defined service packages. For example, according to one researcher, Germany added community based long term care **services, including PAS, to its standard benefits package** (which are financed through Germany's Sickness Funds) as of January of 1995 (personal communication

with Joshua Wiener, February 1995). Covered individuals who need PAS are entitled either to a fixed amount of services, or a lesser amount of cash to purchase their own services. Most people will probably choose the cash alternative, freeing consumers from restrictions on services such as acceptable delivery locations (i.e., in-home, in the workplace, etc.), times during which services can be delivered, or caregiver. The National Council on Aging is currently conducting a study on “cashing out services” which will analyze similar programs of other nations.

3. PAS Regulatory Issues for Workers

The Americans with Disabilities Act (ADA) is the primary regulatory mechanism that would likely have an impact on the availability of PAS in the work place. The literature contains tangential references to the implications of the ADA for employed persons with PAS needs. However, these references are limited to descriptive interpretations of the Act. No research has attempted to empirically evaluate the impact of the ADA on PAS provision in the workplace.

This literature suggests implementation of ADA policies should make the provision of PAS in the work place a much more important and prevalent issue. Researchers at WID report that “although people who need the assistance of other persons are covered by the ADA, the extent to which the law requires **employers**, governmental agencies, or public accommodations to provide the services of personal assistants is key to the law’s long term impact on **the lives of those needing PAS**,” (Litvak, **1994**). This study also reported on the extent to which the Acts requirements for PAS provision by employers has been clarified:

“Conference reports indicate that provision of a personal assistant for a person with a disability in performing job-related tasks (e.g., filing, reading, driving, phoning, writing, typing, setting up) can constitute a reasonable accommodation, depending upon the circumstances of the individual case. Specifically, the test for reasonable accommodation would be met if: **1)** providing a personal assistant for an employee does not involve undue administrative or financial hardship for the employer; **2)** the functions for which the employee receives personal assistance are job-related; and **3)** the employee, not the assistant, performs the essential functions of the job (that is, no **“doubling-up”** on jobs). In addition, the U.S. Equal Employment Opportunities Commission (EEOC), which administers Title I, has indicated that it may be a reasonable accommodation to provide personal assistance on overnight business trips **in connection with specified duties related to the job... The provision of PAS for**

toileting, feeding and dressing is not explicitly addressed either by the legislative history or EEOC interpretation or guidance.” (Litvak, 1994)

The WID authors note that to their knowledge, no complaints or lawsuits regarding the unavailability of PAS in the employment setting have been formally brought before the EEOC or the courts for adjudication. The researchers did not know whether the lack of law suits was because individuals **with** disabilities have been “frightened or unaware of the possibilities for recourse that formal complaint mechanisms and related negotiation might offer, or if employers are making the necessary PAS accommodations,” (Liiak, 1994).

Another study provides more specific information on the Act’s implications: “it is clear from the regulations for this act that the requirement for employers is only to accommodate needs at the work site during work hours. The law does not require employers to pay for assistance at home for such tasks as getting ready for, or getting home from, work, even though having these services may be prerequisite to working,” (Nosek, 1993).

4. **Research Gaps and Potential Research Methods**

A better understanding of the delivery and financing issues, including barriers to PAS among workers with disabilities, will assist policy makers in the design and financing of interventions. Due to a lack of data sources to address these issues, we consider the research gaps first and then discuss potential methodologies for all of the research questions in general.

a. **Where do workers with disabilities receive PAS?**

To understand how PAS affect employment, it is necessary to know where assistance is being provided and who is providing this assistance. **It** would be helpful to determine if PAS were being provided at home or at work. This would allow for a determination of the prevalence of PAS at the work site and an analysis of which PAS are being provided on the job that enable workers with disabilities to continue to work. For example, are certain services provided in the home necessary to maintain employment? Understanding the nature of PAS at work will aid policy makers in designing **interventions**.

b. Who provides PAS to workers with disabilities?

In addition to knowing where services are being provided, it is important to know who is providing that service. Are PAS being delivered by informal or formal sources among the employed disabled? When a person needs some form of PAS in the work place, is it provided by paid helpers who are hired from an outside agency, a paid helper who is hired by and works for the employer, co-workers who are not specifically trained or paid to provide this service, or family members and friends who come into the work place to provide assistance. What types of paid helpers are typically used by employees with disabilities? Do firms hire one or more assistants to help several persons? How do attendants fit into the work setting and culture? Have persons with disabilities formed cooperatives to hire PAS workers? Better **information** on the providers of workplace PAS would help policy makers in assessing the complicated tradeoffs between quality, liability, and flexibility in intervention design.

c. For workers with disabilities, how much does PAS cost? What are the sources of payment?

The supply of personal assistance services is determined by who is responsible for paying for the services, as well as who actually provides them. Financing issues are critical for PAS users. In order to understand how PAS affect employment, it is necessary to first know how much PAS cost, and who will fund its delivery under which circumstances. Who has to pay and how able they are to pay play a large role in preventing or enabling the person with a disability to obtain the personal assistance services they need to work.

Research in this area should first address the basics and then examine more complex financing related issues. Exploration in this area should first try to estimate the total cost of PAS and then examine how these costs vary across circumstances. How does this figure vary depending upon whether estimates of the cost of unpaid services are included? What proportion of total cost estimates (both those using paid and un-paid PAS and those using only paid PAS) can be attributed to PAS for employed persons? How does this proportion vary by state or by rural versus urban settings? What is the average cost of PAS per worker? How do these figures compare to non-workers with disabilities? To what extent does the cost of PAS for workers vary by type of disability or by the level of severity? To what extent does cost vary by type of occupation and industry?

Once the cost of PAS is assessed, research should examine who currently pays for PAS delivered to workers. These analyses should contrast publicly funded PAS programs, employer-funded programs, private insurance, and out-of-pocket expenditures by PAS users and their families. After addressing this basic question, research should address more specific questions such as how does this financing vary by state and funding sources utilized in the states? How does this financing vary depending upon the setting in which services are delivered (i.e., in-home versus in the workplace), and then by state and by funding sources used in the state? Researchers will also want to determine how the sources of financing are influenced by characteristics of PAS recipients, including type of disability, severity of disability, occupation, onset of disability in relation to work history, and the **size** and industry of their place of employment.

d. What are the major barriers to receipt of PAS by workers with disabilities? What specific program, services, and financing features appear to enable PAS for workers with disabilities?

Once an understanding of how PAS are delivered and financed has been reached, researchers should focus on trying to analyze the extent to which the availability of services and the characteristics of financing mechanisms impose barriers to work-enabling services for PAS users. Researchers would first need to explore the access barriers associated with each source of financing (including employers, public programs and private insurance, and out-of-pocket payments), and then assess the extent to which these financing sources complement each other, or result in gaps in attainable services that keep PAS users from entering the work force.

For example, are employers more likely to pay for certain types of PAS than others? Are there limitations in the amount of services which they will provide? How do limitations in the type and amount of services provided vary by firm characteristics (e.g., size of firm, industry) or by employee characteristic (e.g., occupation, seniority on the job, onset of disability, type of disability, severity of disability)? Will employers provide services in all settings, or only in the workplace? Does how companies and the government count attendants in terms of number of employees and full-time equivalents limit the use of attendants or the hiring of persons with disabilities? How do limitations in delivery setting vary by the firm and employee characteristics outlined above? To what extent have such limitations in PAS provided by employers changed since the enactment of the ADA? And finally, to what extent

does the “package” of services that employers will provide meet the PAS needs of (potential) workers? Does the answer to this question vary significantly depending upon the characteristics of PAS users (e.g., type of disability, severity of disability)?

In assessing public PAS programs, researchers will **want** to address first the extent to which public PAS programs are currently a source of PAS for workers, and then the extent to which covered services and eligibility criteria of public PAS programs are broad enough to enable work among PAS users. Researchers will want to begin by determining the number and percentage of public PAS program enrollees who are employed. How does this vary by state and by funding source? How do states vary in terms of the funding sources they use to support their public PAS programs? Why does this variation exist? What are the associated implications for workers with disabilities?

Researchers must then address restrictions in both covered services and eligibility in **terms** of the resulting impact on access to work enabling PAS. What restrictions do public PAS programs place on covered services (by type, amount, setting, and who provides)? How does the extent and nature of restrictions imposed by public PAS programs vary by state and by the funding sources of individual programs? To what extent does the “package” of **services** that public PAS programs include those services that are necessary to enable work? How does the answer to this question vary depending upon the characteristics of PAS users (e.g., type of disability, severity of disability)?

Researchers must also assess barriers to program participation in terms of how these barriers affect the ability of workers with PAS needs to enroll. While covered **services** may be sufficient to enable work, restrictions in program participation may preclude workers from benefiting. To what extent do public PAS programs limit program participation depending upon the applicant’s income and resources, type of disability, severity of disability, risk of institutionalization, or age? How do these restrictions vary by program and associated funding sources? To what extent do these restrictions affect workers disproportionately? Why are these restrictions in place? What would be the consequences of removing these barriers (on budgets, program participation (moral hazard), the mix/type of clients)? And finally, research should assess the cost effectiveness of work-oriented public PAS programs.

Once research has determined the extent to which employer programs, public PAS programs, and private insurance support work enabling PAS, research should assess the extent to which these sources of funding complement each other to meet the needs of PAS workers. Research must also identify the resulting gap in needed services, and how this gap varies across states and by the funding sources associated with specific public PAS programs in those states. Researchers will want to assess the extent to which the “gap” in services is due to affordability and availability of PAS for users who would need to pay for the additional services out of pocket.

Ultimately, researchers must determine the extent to which the structure of our current PAS **system** creates a gap between PAS that are needed to enable employment, and PAS that are accessible through public PAS programs, private insurance, and employer programs or affordable out-of-pocket. To what extent do PAS users refrain from entering the work force due to the risk of losing benefits or because they cannot “**afford**” to work? What steps can be taken to increase the extent to which PAS users participate in **the work** force? Are PAS users aware of their financing options? How extensive and effective are current information dissemination efforts? How does this vary by state? Has the ADA had its intended effect upon PAS provision by employers? Are enforcement mechanisms needed? How can and should our nation’s system of public PAS programs be **restructured** to encourage PAS users to work?

8. Possible **research methodologies for** examining **delivery** and financing’ issues

There are two basic methodologies for addressing these delivery and financing questions. Direct and indirect answers may be provided using quantitative analyses in some cases, but available data are limited for this purpose. Case studies can also be used to supplement these quantitative analyses or to address questions not amenable to quantitative research.

I. Data

A few of the questions could be answered using existing or currently being created **large scale** databases (see Appendix III-2 for a description of databases we identified), or by creating new data bases that would be specially designed to **address PAS related questions.**

A data set that could address these issues would need to have information on disability and employment and would have to have information about financing and/or delivery of services. Financing and delivery can be addressed in many different ways. The most general would be items that address whether the individual receives any funds or funding for services because of his or her disability. The most specific measures would provide information on who funded each type of personal assistance service and where and by whom was this service provided.

HSRI-PAS and NMES have the greatest detail about funding sources. However, the generalizability of the HRSI-PAS data is questionable because of the relatively small size of the samples. Also, subjects were selected because they were already in contact with a PAS program and this probably resulted in a nonrepresentative sample. NMES includes assistance received with **ADLs** and **IADLs** by who supplies the assistance and who pays for it. Unfortunately, the sample of people who worked and received any assistance with an ADL or an **IADL** in the NMES is only 33. This sample size would not permit powerful statistical tests. The MCBS could be used for some analyses, but its usefulness is limited because: (1) workers with disabilities could only be identified if they **received health** insurance through their job and (2) data on financing is limited. It could only be determined who paid and how much if the **services** were received through Medicare, otherwise, it can only be determined if the helper is a relative. The **NHIS 1994/1995** will be helpful when it becomes available because it will include who pays for each service received. All of these data sets will allow for **cross-tabulations** with demographic variables, workload **variables, and** type of disability.

Information about financing is very general in these data sets. Many of the data sets cited in this review have information about whether the disabled person is receiving government funds, primarily income programs. Some sets separated these funds out by the programs from which they came. Data sets that could be used for financing analyses include **SIPP**, NMES, and HSRI-PAS. Analyses could also be done with the core **NHIS** and ICD if it is assumed that need equals receipt.

Many of the data sets addressed whether the personal assistance services came from paid/formal sources or from unpaid/informal sources. This variable would allow policy makers to have a simple understanding of who is currently enabling disabled people to meet their activities of daily living. **SIPP** addresses whether the family paid for some of the help received

and the amount they paid. As stated previously, NMES tells whether help was provided by a relative and whether that relative was co-residing with the disabled person. HSRI-PAS addresses the informal versus formal question.

A better understanding of how paid PAS relate to employment could be gained by establishing a data set that contains longitudinal data covering all (or at least a nationally representative sample) programs that provide personal assistance. This data set should include information about the person with a disability at the time they enter the program. This information should include basic demographics and work load variables and any PAS they are **currently** receiving including informally provided PAS. The agencies should track the types of service, number of hours, and cost per services over time and periodically reassess the variables taken at the baseline. Much of this information is probably already being gathered by the various PAS agencies. The difficulty would lie in having the agencies agree to relay the information in a timely manner and coordinating and standardizing the data collection procedures among the diverse agencies. Other questions could be answered if a large scale sample of workers with disabilities that includes a broad range of disability, work load, demographic, PAS, and delivery and financing variables were obtained. If this data set were maintained longitudinally, research could try to establish if there is a causal link between the provision of PAS and employment. This could be established by following the disabled **sub**-sample collected for the **NHIS** over time using the data collected in 1995 as a baseline. Finally, examinations of current state and county programs that provide PAS and AT to individuals with disabilities could provide **new** sources of data and information. For example, the Massachusetts Medicaid buy-in program and the Pennsylvania PAS program warrant further investigation.

II. Methods

Four types of quantitative analyses would be helpful in addressing the questions raised earlier. Some of the questions such as total cost would simply require basic descriptive statistics. A second group of questions could be addressed using cross-tabulations (i.e. costs by type of payer). A third technique would be multiple regression, including logistic regression and time series analysis. This could allow for an understanding of how payment and delivery issues interact to determine utilization and employment and how the acquisition of paid PAS

alters these relationships. Fourth, to address how changes in funding and delivery policies would alter use of PAS and employment, simulation modeling would be necessary. This technique would allow for predictions on how changes in policy or circumstances may affect the cost of PAS.

A second methodology for examining the relationship between PAS and employment would be a large intervention study or demonstration project. Under ideal circumstances, one would want a randomly assigned group of people with disabilities who were receiving a limited amount of personal assistance services. The goal of this intervention would be to try to develop the most effective and cost efficient guidelines for providing PAS with the goal of assisting employment. It might be possible to achieve a modified version of this study by altering the constraints of federal programs that currently fund PAS.

A third methodology would be to examine the provision and financing of PAS through case studies. PAS financing and delivery issues could be qualitatively examined in depth in agencies that deliver PAS, among employers who hire people with disabilities, or among persons with disabilities". Examining PAS agencies, such as was done in the HRSI-PAS study conducted by Madeline Kimmich, or job sites with a focus on the particular financing and delivery questions of interest could provide hypotheses about the relationship between PAS and employment and help illuminate how barriers affect whether work-enabling PAS are received. Case Studies on individuals should focus on those who are particularly likely to need PAS. However, this type of evidence is often difficult to generalize to other settings.

⁶¹ A WID researcher is currently conducting in-depth case studies of the role of PAS in people's lives.

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Appendix III.1

A General Overview of the Use of Personal Assistance Services

This appendix summarizes findings of research into the use of personal assistance services by persons with disabilities. While the literature on PAS use by this population is extensive relative to research into PAS use by workers with disabilities, it is characterized by significant gaps in information.

There has been little empirical research using large scale data sets to estimate the characteristics of PAS users, including the reasons for use, the level of use, the type of services used, and the employment settings of PAS users. Two notable exceptions that provide some information on the demand for PAS are: a study published in 1990 by The World Institute on Disability and Rutgers University-Bureau of Economic Research that examined the need for PAS by several demographic variables using data from the 1984 **Survey** of Income and Program Participation (SIPP); and a 1993 study that did similar analyses using the 1990-1991 **SIPP** waves three and six (McNeil, 1993) (see Appendix 1 for a description of the **SIPP** and Appendix 2 for a listing of PAS related variables). These studies provided estimates of the following demographics of PAS users: (1) size of the population, (2) age, (3) sex, (4) race, (5) "type" of disability, (6) functional disability (7) living arrangements, (8) education and (9) income. @ Unfortunately, these data are based on the need for personal assistance and not the actual receipt of assistance; However, this material is supplemented with analyses of data from the 1987 National Medical Expenditure Survey (NMES) conducted by Lewin-VHI that examine actual PAS utilization. In addition, other research provides some information about the age at onset of disability and living arrangements/family characteristics among PAS users.

² All **SIPP** data reported in **The** World Institute on Disability and the McNeil reports are for the population age 15 and older living in the community unless otherwise designated.

I. Characteristics of PAS Users

In the early 1990s approximately 3.9 million people between the ages of 15 and 64 needed personal assistance with one or more of their activities of daily living (**ADLs**) or instrumental activities of daily living (**IADLs**) (McNeil, 1993). This population needing PAS accounted for about 13 percent of all people between the ages of 15 and 64 with a disability [defining disability as “a limitation in a functional activity or in a socially defined role or task” (McNeil, 1993, p. 3)]. When disability is defined more stringently, not being able to perform a functional activity or social role or task rather than just having difficulty, the percentage of PAS users increased to 29 percent in these age groups. **Lewin-VHI's** analysis of NMES data revealed that of people of all ages with any ADL or **IADL** deficit, about 30 percent were receiving paid PAS.

PAS users tend to be elderly, female, and white. Of people living in the community in the early **1990s**, almost three-fifths of all individuals needing PAS were age 65 or older (McNeil, 1993). A higher percentage of publicly funded PAS went to people who were 65 or older -- 77 percent in 1984 (World Institute on Disability and Rutgers University Bureau of Economic Research, 1990). PAS recipients are also more likely to be female than the general population. In both 1984 and the early **1990s**, women accounted for 63 percent of all people needing PAS and 70 percent of the population receiving publicly funded PAS (1984 data only), but only 52 percent of the general population (McNeil, 1993; World Institute on Disability and Rutgers University Bureau of Economic Research, 1990). In 1984 over four-fifths of people receiving publicly funded PAS were white as were four-fifths of the people needing PAS in **1991/1992**. The percentage of African Americans needing PAS was 16 percent in the early 1990s and the percentage of the Hispanic population was seven percent (McNeil, 1993; World Institute on Disability and Rutgers University Bureau of Economic Research, 1990)⁶³

The PAS population is less educated and has lower income than the general population. Almost two-thirds of the population who needed PAS in 1984 did not have a high school diploma compared to less than one-third of the general population (World Institute on Disability and Rutgers University Bureau of Economic Research, 1990). People who need

⁶³ Totals may exceed 100 percent because of people belonging to more than-one ethnic group.

assistance have lower personal and family income than the general population (World Institute on Disability and Rutgers University Bureau of Economic Research, 1990). The low purchasing power of persons with disabilities may help explain why most PAS users rely on family volunteers for assistance rather than paid help (World Institute on Disability and Rutgers University Bureau of Economic Research, 1990).

One study using a moderate sample size of people with disabilities presented data about users' age, age of disability onset, race, household composition, income, education, type of disability, and need for functional assistance (Kimmich & Godfrey, 1991). However, this study used subjects drawn from four sites in different cities and, therefore, was not nationally representative. Given this caveat, this study provides estimates of pertinent variables that were not included in The World Institute on Disability report. Kimmich and Godfrey (1991) found that: 37 percent of PAS users had been disabled since birth; about one in five were disabled between birth and age 21; one in four were disabled between ages 22 and 59; and one in five were disabled when they were age 60 or over.

The findings from the Kimmich and Godfrey study also suggest that the living arrangement of persons with disabilities may also affect use of PAS. Persons with disabilities receiving PAS tend to have low marriage rates and have high rates of living alone. In the Kimmich sample, only 13 percent were currently married. Another 14 percent were divorced or separated, 19 percent were widowed and over half (54 percent) had never married. Forty-one percent of the sample lived alone and another nine percent lived with a personal assistant only. Only eight percent were living with a spouse.

The conditions for which people seek PAS are varied. In 1964 PAS were needed by 41 percent of people who were blind, 37 percent of people who had multiple sclerosis, 27 percent of people who were missing legs, and 25 percent of people who were mentally retarded (Litvak, 1991). However, because these conditions tend to be relatively uncommon, over three-fourths of people needing personal assistance with mobility, housework and meal preparation did so because of back and/or spine problems, arthritis, heart or stroke conditions (World Institute on Disability and Rutgers University Bureau of Economic Research, 1990).

II. Level of PAS Use

Lewin-VHI's analysis of NMES data revealed that of people receiving paid PAS, people with any ADL or **IADL** deficit received an average of 509 hours of paid PAS annually in 1987, or about 10 hours per week. Usage increased **significantly with** impairment. People with only one ADL deficit averaged about 287 hours per year (about 5 hours per week), while people with deficits in all five of their **ADLs** averaged 1,730 hours per year (33 hours per week). Unfortunately, no information was available about the number of hours of informal PAS used.

III. Types of PAS Used

PAS are more likely to address **IADL** impairments than ADL impairments. Almost **one-third** of the people needing PAS required personal care. Almost one-half needed help getting around. Nearly four out of five needed help with housework and 56 percent needed assistance with meal preparation. Approximately two-fifths of the people receiving PAS only needed help with one of these four categories of care. One-fourth needed help with two categories and one-fifth received help with all four categories (World Institute on Disability and Rutgers University Bureau of Economic Research, 1990).

The literature does, however, provide some information on who provides the PAS care (type of caregiver). Approximately 80 percent of all PAS care is uncompensated, primarily because it is provided by unpaid relatives and friends (Harpine, McNeil, & Lamas, 1990; World Institute on Disability and Rutgers University Bureau of Economic Research, 1990). Lewin-VHI's analysis of NMES data revealed that among people with any ADL or **IADL** deficit, almost one-half were receiving help from a family member that lived with them and 30 percent were helped by a family member not living with **them**.⁶⁴ Less than three percent had a live-in **non-family** provider, while almost 22 percent had a non-family provider who lived outside the household. Given that very few programs reimburse family members who serve as attendants, and some "go so far as to refuse reimbursement to non-family personal assistants if a **non-disabled** spouse or other family member resides in the home of the individual with a disability

⁶⁴ These categories are not mutually exclusive.

(Litvak, 1994), it can be argued that the vast majority of paid care is not provided by people who could be considered informal caregivers.

People who live alone appear to use more paid personal assistance services than informal care than people who live with relatives. Among PAS consumers living in the community, 10 percent used paid PAS only. Of these, 60 percent did not live with relatives. Eleven percent used paid and volunteer PAS and 79 percent used volunteer or informal PAS only; 87 percent of these people lived with relatives (World Institute on Disability and Rutgers University Bureau of Economic Research, 1990).

Lewin-VHI's analyses of NMES data revealed that among people who used paid PAS, the most common service providers were, in declining order of occurrence, (1) a home health aide, (2) other (i.e. doctor, physical therapist, other therapist, social worker, other medical), (3) a nurse or nurse practitioner, (4) a homemaker, and (5) a licensed practical nurse (LPN). People using home health aides averaged over 477 hours per year spread over an average of 86 visits. People using a nurse averaged over 89 hours per year spread over 31 visits. People using homemakers averaged 377 hours per year spread over 76 visits. People using a LPN averaged 1,530 hours per year spread over 99 visits. People who reported other types of PAS only received an average of 71 hours per year spread over less than 19 visits.

Analysis of NMES data showed that among people using home health care (which encompasses a broad range of services including but not limited to PAS), 43 percent of the cost was out-of-pocket, 11 percent was covered by private insurance and 46 percent was covered by government programs - - primarily Medicare (19 percent) and Medicaid (24.5 percent). The average expenditure per person using home care in 1987 was \$1,967 per year. This average was lower in the population in the prime employment years averaging only \$675 among those under 40 and \$1,652 among those 40-64. Differences increased dramatically with the severity of impairment. People with no ADL or **IADL** difficulties only incurred an average of \$637 in home care expenses while people with 3 or more ADL difficulties incurred average expenses of \$4,179 (Altman & Walden, 1993).

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Appendix III.2

Potential Data Sources on PAS Utilization and Employment

Several data sets exist that could be used to assess questions about personal assistance services use and employment. Relevant data sets that contain information on **users** of PAS that are currently available include the following: (1) the **Survey** of Income and Program Participation (SIPP), (2) the National Health Interview Survey (NHIS), (3) the National Medical Expenditure Survey (NMES), (4) the Current Population Survey (CPS), (5) the Human Services Research Institute's New Models for the Provision of Personal Assistance Services (HSRI - PAS), (6) the International Center for Disability/Louis Harris & Associates **survey** (ICD), (7) the National Organization on Disability/Louis Harris & Associates **survey** (NOD), and (6) the Medicare Current Beneficiary Survey' (MCBS). Two data sources we identified provide information or listings of programs/resources offering PAS: (1) Job Network; and (2) WID Public Program data. Other data sets that may be made available in the future or are currently or about to be collected include: (1) **NHIS** 1994, (2) the Social Security Administration (**SSA**)-Rehabilitation Services Administration (RSA) "datalink", and (3) the evaluation of the Medicaid Community Supported Living Arrangements (CSLA) program.

In Exhibit III-2-1, we summarize the demographic and employment variables in each **dataset**. Appendix III-3 includes a listing of all the PAS related variables in the datasets. One potential source of data we did not pursue for this paper would be current PAS projects that do not have data collected for a federal agency or have not been reported in the literature. These may include state vocational rehabilitation efforts, independent living centers, and demonstration projects.

I. Currently Available Person-Level Data

A number of data sources provide samples of individuals who have disabilities and use PAS. These data also provide varying levels of detail on sociodemographic and economic characteristics of the individuals. Each of these data sets has its limitations.

Exhibit III-2-1
Person-level data sets that could potentially be used for analyses of PAS employment

Variable	Currently Available Databases								Other databases	
	SIPP	NHIS '89	NMES	CPS	HSRI PAS	ICD	NOD	MCBS	NHIS '94	SS/RS datalink
DEMOGRAPHIC CHARACTERISTICS										
• Age	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
• Age at disability onset		✓			✓	✓	✓	¹	✓	✓
• Sex	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
• Race	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
• Geographic location	✓	✓	✓	✓	✓ ²	✓	✓	✓	✓	✓ ³
• "Type" of disability	✓	✓	✓		✓	✓	✓	✓	✓	✓
• Functional disability	✓	✓	✓	✓ ⁴	✓	✓	✓ ⁵	✓	✓	
• Living arrangements	✓	✓	✓	✓	✓	✓	✓	✓	✓	
• Family characteristics	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓ ⁶
• Social resources	✓		✓		✓	✓				
• Education	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
• Engaged in (vs. seeking) competitive employment	✓	✓	✓	✓	✓	✓	✓		✓	✓
• Income	✓		✓	✓	✓	✓	✓		✓	✓
• House/family income	✓	✓	✓	✓		✓	✓	✓ ⁷	✓	
• Family income history										

- ¹ While they do not have age of disability onset, they do include day of eligibility for Medicare, which could act as a proxy measure for people under 65.
- ² Only 4 sites selected: Birmingham, Pittsburgh, Milwaukee, and Seattle.
- ³ In **R911** file which is incorporated into the datalinkexchange file, but not specifically mentioned as a variable in the file's documentation.
- ⁴ Only asked if the subject had health problems or a disability which prevented or limited work and whether he/she was receiving any disability benefits.
- ⁵ There are only a limited number of questions on functional disability compared to other databases.
- ⁶ Marital status.
- ⁷ Income for subject and subject's spouse only

Exhibit III-2-1 (Continued)
Person-level data sets that could potentially be used for analyses of PAS employment

Variable	Currently Available Databases								Other databases	
	SIPP	NHIS '89	NMES	CPS	HSRI PAS	ICD	NOD	MCBS	NHIS '94	SS/RS databank
USERS' EMPLOYMENT CHARACTERISTICS										
• Industry	✓	✓	✓	✓	✓			✓	✓	
• Occupation	✓	✓	✓	✓	✓	✓	✓		✓	✓
• # of hours/week worked	✓		✓	✓	✓				✓	✓
• Wages	✓		✓	✓	✓					✓
• Emp. accommodations					✓ ⁸	✓				
• Years of employment	✓					✓			✓	
• Benefits										
- Health insurance	✓		✓	✓	✓	✓		✓	✓	✓
- Pension	✓			✓	✓					
- Sick leave			✓		✓					
• Absentee rates	✓	✓	✓	✓ ⁹					✓	
• Receipt of SSI	✓		✓	✓	✓	✓			✓	✓
• Govt. program funds	✓		✓	✓	✓	✓		✓ ¹	✓	✓
• Never held job more than 6 months				✓ ¹¹		✓ ¹²	✓ ¹²			
• Job Related Training	✓				✓	✓ ¹³	✓			✓

⁸ Address what accommodations/adaptations necessary to enable work.

⁹ Question addressed whether the subject lost any time or took any time off during the preceding week for any reason such as illness, holiday or slack work. Responses were yes or no.

¹⁰ Only Medicaid.

¹¹ Had a never worked response item to a question about when the subject last worked.

¹² Addresses employment for one year rather than six months.

¹³ Study does address whether the respondent was in a job training program previous to current position or whether respondent is currently in a job training program.

A. The Survey of Income and Program Participation (SIPP)

The **SIPP** data set has a large number of variables and will allow for some longitudinal analyses. It contains a wide array of demographic and employment characteristics. It also has a limited number of variables that examine PAS. However, these variables would only allow for an assessment of whether or not the person is receiving any PAS and whether the assistance is coming from someone living in the household or not. It could also be determined if the family had paid for help, but it could not be determined for what services they had paid.

SIPP contains basic demographic, social, and economic characteristics data for each member of a household. The time span covered varies depending on the rotation group to which the subject belongs. The sample was divided into four approximately equal groups/rotations and one group was interviewed each month. All data was gathered between October, 1989 and July, 1991. Data is also available from the 1984 and 1988 Panels. Subjects were drawn from all over the United States. The 1990 data set contains 65,369 records.

PAS related items address whether the person received help and if that person was a household member, if and how much was paid for care, and whether the help of another person was needed with the individual **ADLs** and **IADLs**.

B. The National Health Interview Survey (NHIS)

Like the SIPP, the core **NHIS** conducted every year is a large data base that covers most of the demographic variables. However, the **NHIS** covers fewer of the employment variables and is extremely limited in its assessment of PAS usage.

The household sample of the **NHIS** is a continuing nationwide personal interview household survey. It uses a national sample of the civilian, noninstitutionalized US population. The sample is chosen using both clustering and stratification. During a year, the sample is composed of 36,000 to 47,000 households, including 92,000 to 125,000 persons, depending upon the year. Data are available for each year from 1969 through 1992.

The data set includes only general information about whether the person was disabled and whether the person needed help with personal care. However, a supplement to samples that are currently being gathered asks extensive **PAS** questions.

C. The National Medical Expenditure Survey (NMES)

The 1987 NMES is another large scale data base similar to **SIPP** and NHIS. Like the SIPP, it is longitudinal and addresses a wide array of demographic and employment characteristics. It also addresses a wide array of PAS related variables. However, the sample size of people who are receiving any PAS and are working is extremely small (N = 33).

NMES is based on a national probability sample of the civilian, noninstitutionalized population living in the community. Certain groups were over-represented: poor and low income families, the elderly, the functionally impaired, and black and Hispanic minorities.

Each family in the Household Survey was **interviewed** four times over a period of 16 months to obtain **information** about the calendar year 1987. Baseline data were updated at each interview. A long term care supplement was administered during the first and fourth rounds of interviewing to permit estimates of persons with functional disabilities and the use of formal services or long **term** care provided by family or friends.

The sample was gathered using a stratified multistage area probability design. The total sample of the Household Survey was roughly 35,000 individuals in 14,400 households. This data set contains information about individual ADL and **IADL** difficulties, whether assistance or supervision was received for each, and who provided such assistance. More detailed utilization and expenditure information is included for paid home and community-based care services.

D. The March Current Population Survey (CPS)

Analyses using CPS data would probably not be very fruitful. While it is a large database that covers most of the demographic and employment characteristics, it does not include items that directly assess PAS utilization. The CPS only addresses whether the person was disabled, if they are receiving any disability-related benefits, and if disability prevented them from working.

The CPS samples the civilian noninstitutional US population living in housing units and members of the Armed Forces living in civilian housing units on a military base or in a household not on a military base.

The CPS interview about 57,000 households monthly. Each household is interviewed once a month for four consecutive months one year, and again for the corresponding time period a year later. The March interview includes extensive questions about income sources and employment characteristics. The file size is approximately 163,000 records.

E. The Human Services Research Institute's New Models for the Provision of Personal assistance Services (HSRI - PAS)

The HSRI-PAS addresses a large number of demographic and employment characteristics. It also has extensive questions about PAS utilization. In addition, it is longitudinal and efforts were made to obtain people who were new to receiving PAS. However, this database has two major weaknesses. One, it is only of moderate size (N = 132 at baseline, 105 at outcome). Two, it uses a convenience sample that is not nationally representative.

This study consisted of a case study examination of personal assistance services programs and longitudinal **interviews** with consumers of personal assistance. This description will focus on the latter component. Subjects were gathered from four agency sites that were selected because they offered a variety of consumer-directed personal assistance services (PAS) programs, were geographically diverse, had high potential for consumer control, and where the local United Cerebral Palsy Association (although the subject pool was not exclusively Cerebral Palsy) was willing to participate. The sites were Birmingham, Alabama, Pittsburgh, Pennsylvania, Milwaukee, Wisconsin, and Seattle, Washington. Ten PAS programs were covered.

Data was gathered during three in-person interviews that were conducted one year apart. The study began in 1987 and lasted 3 years. Individual subjects were selected if they had a willingness to participate and relatively little exposure to PAS prior to the first interview (this limited subject recruitment and the criteria was eased). There were 132 subjects in the first round of interviews, 114 in the second round, and 105 in the third round.

The Principal Investigator on this project was Madeleine H. Kimmich, D.S.W. and was funded by the National Institute of Disability and Rehabilitation Research in the U.S. Department of Education.

F. Louis Harris & Associates Suveys

Louis Harris and Associates conducted two surveys of approximately 1,000 people in 1986 and 1994. These survey's addressed most basic demographic information and included some items on disability and a few items that addressed PAS utilization. They do not appear to have explored the data beyond the basic descriptive statistics and a few cross-tabulations. The National Organization on Disability (NOD) is willing to allow outside agencies to commission further analyses on the 1994 data set. This may provide an easy way of obtaining some basic information quickly. However, because of the dearth of PAS variables, this data set will not allow for in-depth analyses.

The ICD survey consists of a sample of 1,000 disabled people aged 16 and over. All participants either (1) had a disability or health problem that prevented them from participating fully in work, school, or other activities, (2) had a physical disability, a sight, hearing, or speech impairment, and emotional or mental disability, or a learning disability, or (3) considered himself or herself disabled, or said that other people would consider him or her disabled. Subjects were randomly selected from the entire U.S. interviews were conducted in late 1985 by Louis Harris and Associates.

The under age 55 population was oversampled to increase the number of working-age disabled, and the sample was weighted to compensate for this. About 17% of the interviews were conducted with a proxy for the disabled person because the disabled person was either unable or unavailable to be interviewed.

The ICD survey had a few items that could be loosely related to PAS. The survey does provide the opportunity to address to what extent the lack of PAS prevents work force participation.

The 1994 NOD survey is roughly comparable to the 1986 ICD survey. As was the case for the ICD survey, it was conducted by Louis Harris and Associates. However, several of the items have been altered or deleted, while others have been added.

The NOD survey drew a sample of 1,021 non-institutionalized people with disabilities 16 and over. **Interviews** were conducted over the telephone. The definition of disability was the same as in the ICD survey. Sampling was altered from a strict random design to ensure that there was a minimum number of subjects in the following age groups: 16 to 24, 25 to 54, and **55+**. The data was weighted to compensate for this oversampling of younger age groups. As **was** the case with the ICD survey, about 15% of the interviews were conducted with proxies.

This survey added a national sample of 1,115 adults without disabilities as a comparison group. Interviews were conducted in early 1994.

Like the ICD survey, the NOD can address to what extent the lack of PAS prevents work force participation. In addition, this item has a more direct, although limited measure of PAS usage.

G. Medicare Current Beneficiary Survey (MCBS)

The MCBS is a continuous panel survey of Medicare beneficiaries that includes the disabled and the aged in both the community and in institutions. The MCBS household sample is selected from the Health Insurance Master File for Medicare enrollees. The oldest old (**85+**) and the disabled are oversampled. Each year the sample includes 12,000 household interviews and 1,000 nursing'home interviews.

Core instruments collect information on utilization, cost, charges, and sources of payment for inpatient hospitalization, outpatient departments, emergency rooms, provider, prescription medication, other medical expenses, and health insurance. Supplements are administered on a periodic basis and include the access series, **QMBs**, Income and Assets and the Facility Screener. These files are supplemented by HCFA administrative files.

A panel of respondents are interviewed three times a year in both the household and institutionalized settings. Knowledgeable proxy persons are sometimes used.

The **survey** includes the basic demographic information, a minimum amount of information about employment and some information about whether the person received help. Only employed people who receive health insurance from their employers can be separated

out from the rest of the sample. There is extensive claims data on home health services received through Medicare, but, given the restrictions put on the receipt of these services, this information may be mostly irrelevant to understanding employment among workers with disabilities.

II. Currently Available Program/Resource Data

Other data sources focus on PAS programs **as** the unit of analysis, rather than PAS users. Each of these data sets has significant limitations.

A. WID Public Program Surveys

The World Institute on Disability conducted the only two national surveys of 'government-funded programs for people of all ages with disabilities which offer personal maintenance and / or household / domestic **service** on a long-term basis or short-term (respite) basis," in 1985 and 1988. The first study identified 157 state and federally funded government programs which provide PAS; the second identified 132 public PAS programs.

These surveys collected data on a broad array of program characteristics, some of which are important determinants of whether workers with disabilities can participate in and benefit from the programs. Relevant variables include: (1) funding sources used, (2) hours of **service** provided, (3) eligibility requirements (e.g., income, age), (4) services offered, (5) **service** availability and limitations, (6) consumer control issues, and (7) provider types utilized. These variables would allow for an assessment of the extent to which the programs include work disincentives.

B. Job Accommodations Network

The Job Accommodations Network has an extensive nation-wide database which was developed as a resource for individuals with disabilities who are currently employed or are seeking employment. While this database includes information on identified resources for PAS users, the information is limited to contact names and phone numbers.

III. Future Data

Other databases that either will be or could be made available might shed even greater light on the relationship between PAS utilization and employment. For example, the version of the **NHIS** that is currently being gathered adds a substantial number of PAS related questions to what was included in the 1989 version.

A **1994-95 National Health Interview Survey (NHIS) Disability Supplement**

The **1994/1995** version of the **NHIS** will, in addition to what has been gathered in previous **NHIS** data sets, gather extensive disability and PAS data. This data set will include information on presence and amount of help and **supervision** with **ADLs** and **IADLs**. There are also extensive questions about financing and some items about delivery.

B. **The Social Security Administration (SSA) and the Rehabilitation Services Administration (RSA) “datalink” and “data exchange”**

The Social Security Administration (SSA) and the Rehabilitation Services Administration (**RSA**) have linked their files on Vocational Rehabilitation clients whose cases were closed in 1988 and are currently doing the same for 1990 and 1991 and are planning to do so for 1989 and 1992. The 1980 and 1988 links are referred to as the **RSA/SSA** ‘datalinks,’ while subsequent links have been labeled “data exchange.” The However, the 1988 set, which was used by GAO in a 1993 report (U.S. GAO, 1993, PEMD 93-19) only used Social Security numbers (SSN) to link the two data sets. Thus, if the SSN was incorrect, the RSA data file could have been linked to the wrong SSA data file. This problem is being corrected on subsequent data sets by matching the samples by date of birth in addition to SSN.

These data sets, which are likely to contain somewhere around 600,000 cases each, could have a wealth of demographic and employment variables in a data set that concentrates on people with disabilities. Currently, the set does not include any items that addresses whether the person was receiving PAS or not. The Rehabilitation Services Administration, which has ownership of the data set, plans to add more detailed questions about PAS in the future.

**C. Community Supported Living Arrangements (CSLA)
Evaluation**

Other research questions may be able to be addressed using the evaluation of Medicaid's Community Supported Living Arrangements (**CSLA**) projects. **HCFA-ORD** is planning on gathering a sample of **240 CSLA** recipients and addressing issues such as characteristics, lifestyles, **service** utilization and life satisfaction. HCFA had planned to publish results of this survey in June 1995, however, they are currently waiting for the survey instruments to be approved by the Office of Management and Budget (OMB).

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CHAPTER FOUR

ASSISTIVE TECHNOLOGY

A. Introduction

Assistive technology (AT) can play an important role in helping many workers with disabilities to compete in the competitive labor force. The 1988 Technology Related Assistance Act (**Tech Act**) defines assistive technology (AT) as “any item, piece of equipment, or product system, whether obtained commercially off the shelf, modified or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities.” Among these “functional capabilities” for some individuals with disabilities are the requirements of their jobs.

While the use of AT clearly holds promise for helping more people with disabilities to enter or remain in the competitive workplace, the purpose of this chapter is to review what is now known about the use of AT on-the-job. For example, how is AT funded, who uses AT on-the-job and what kind of assistive technology devices (AT) do they use? Are there unmet needs or other barriers for potential users of AT on-the-job, perhaps due to a lack of information on available AT or access problems such as the cost of some AT? Answers to each of these questions will also suggest potential areas for new research to better inform public policy.

1. Summary of the Findings

In Section B we provide an overview of some of the more important issues associated with the use of AT by workers with disabilities including:

- ***The financing of AT for workers with disabilities is fragmented*** -- there is no central source of public or private funds for AT for workers with disabilities. The most important source of funding is private, out-of-pocket expenditures made by the users of AT and their families. Unfortunately, many potential users of AT and their families lack the resources needed to purchase AT. Public funding is divided among numerous federal and state programs, each with its own potential clientele, types of AT funded, and restrictions on the use of AT funding. The federal government has also passed a considerable amount of legislation, including modifications to the tax code, that

encourage or even mandate the funding of some AT by third parties. (NCD, 1992), (Committee on Ways and Means, 1994), (Steinfeld and Angelo, 1992), (GAO, 1993), and (Dean and Dolan, 1993).

- ***There is no “typical” AT user --*** many AT are commercially available products used by workers with and without significant disabilities and impairments. AT can help workers with numerous and/or severe physical impairments function on and off the job, but AT is less successful in helping workers with mental impairments cope with their job requirements. Finally, more AT are being designed that provide workers with disabilities with “access” in the workplace, rather than “adapting” the workplace to meet the particular needs of these workers. (DeWitte, 1991), (Ward, 1992), (NCD, 1993), (Tan and Horowitz, 1993), (Beattie, 1991), (Scaddon, 1991), (Vanderheiden, 1991a), (Hauger, 1991a), (Kauppi and Dzubak, 1992), (Phillips and Zhao, 1993), (Mann and Svosai, 1994), (NIDRR, 1992), (Horstmann, Levine, and Kett, 1990), and (Vagnoni and Horvath, 1992).
- ***Careful selection of appropriate AT and training in their use is essential --*** for AT to be most useful, there must be careful communication between workers with disabilities, their employers, and AT professionals to define the requirements of each job, the abilities and limitations of each worker, and appropriate AT and related services allowing workers with disabilities to meet their job requirements. To insure success, workers with disabilities need training in the use of AT, and employers and AT professionals need to provide continued technical assistance and to conduct periodic reassessments of the needs of workers with disabilities. (Phillips, 1989), (Steinfeld and Angelo, 1992), (Kimmel, Ourand, and Wheatley, 1992), (Lysaght and Hurlburt, 1992), (ABLEDATA, 1992), (The President’s Committee on Employment of Persons with Disabilities, 1994), and (NARIC, 1993a).
- ***There are many unmet needs and other barriers limiting the use of AT --*** potential users of AT on the job often cannot afford to buy these items themselves, and other sources of funding are often limited. Many workers with disabilities are also unaware of products that now exist that can assist them on the job. Many users of AT are not trained in the use of their AT, while others feel that using some AT may isolate them from their coworkers and other members of society. (Enders, 1990), (NCD, 1993), (Phillips, 1989), (Ward, 1992), (Laplante, Hendershot, and Moss, 1992), (Weaver, 1991), (Dean and Dolan, 1993), (GAO, 1993), (Horstmann, Levine, and Kett, 1990), (Vanderheiden, 1991 a and 1991 b).

In Section C we review current, publicly available micro survey data on the use of AT by workers with disabilities:

- ***Potentially rich sources of data on the use of AT by workers with disabilities have not yet been fully utilized --*** the 1990 National Health Interview Survey on Assistive Devices (NHIS-AD) measures the use of AT and home accessibility features by persons of all ages. The NHIS-AD can be linked to the 1990 National Health Interview Survey (NHIS), a nationally representative household **interview survey** on health status (including disability status), the presence of specific health conditions and diseases, demographic data, insurance status, and labor force participation -- including hours

worked, occupation, and industry. To date, we are unaware of any research using the NHIS-AD to compare the labor force participation patterns of workers with disabilities who do and do not use AT. The value of conducting an analysis of the **NHIS-AD**, however, would be limited by the following problems: (1) the NHIS-AD is a **cross-sectional**, not longitudinal, **dataset**, making it difficult to identify causal relationships between AT use and employment; (2) the NHIS-AD does not indicate where AT are used -- e.g., on the job, off the job, or both; and (3) the NHIS-AD includes only a few AT commonly used on the job. (Laplante, Hendershot, and Moss, 1992).

2. **Issues for Further Research**

The findings reported above suggest a number of possible areas for future research, including:

- **Financing AT** -- could the current system of public funding be streamlined and rationalized? Could the experiences of other countries help in redesigning public funding for AT? How could splitting the costs of AT between the government and private employers be encouraged? Have recent legislation and changes to the tax code had any measurable impact on the use of AT by workers with disabilities? Should some public programs provide funding for AT used off the job by workers with disabilities? (NCD, 1993).
- **The Use of AT by Workers with Disabilities** -- how cost effective is the use of AT, particularly compared to other alternatives (e.g., personal assistance)? Can job accommodations for workers with disabilities that include AT and related services be better targeted to the needs of those workers? A focused, case study approach that studied programs now providing AT and related services could investigate if those people with disabilities who use AT are more likely to be employed. (NIDRR, 1992).
- **Unmet Needs and Other Barriers** -- along with any streamlining/expansion in public funding for AT, should the federal government pursue the development of standards in telecommunications and computer technology that would aid in the development of access technologies for workers with disabilities? More research is also needed on how much people with disabilities, their families, their employers, and professionals who help design job accommodations now know about the availability of various types of AT, particularly the most recently developed devices. (Vanderheiden, 1991 b).
- **How Does the Use of AT Affect the Labor Force Participation of Workers with Disabilities** -- using the 1990 NHIS-AD, researchers could investigate the following issues: (1) does using AT increase the labor force participation (both number of labor force participants and hours worked) of workers with disabilities; (2) are the use of particular AT more strongly associated with greater labor force participation; (3) are workers with certain types of disabilities more likely to benefit from using AT; and (4) are people with disabilities who have unmet needs for AT less likely to participate in the labor force than those whose needs for AT are met? For older workers with disabilities, the Health and Retirement Survey is another excellent source of information on work accommodations, including those that use AT.

- **Investigating demonstration projects and other programs** -- after identifying demonstration projects and other programs promoting the use of AT by workers with disabilities, the effectiveness of the most promising programs could then be investigated.
- **Medicare demonstration projects** – Medicare now pays only for those AT devices that are used to treat an acute medical condition in the home (e.g., home medical equipment). A demonstration project that broadens the AT covered by Medicare for Social Security disability insurance (SSDI) beneficiaries could be conducted. Such a demonstration project could be part of a larger work incentive demonstration projects studying the payment and outcomes for AT funded by Medicare and Medicaid.

B. The Use of Assistive Technology by Workers with Disabilities

1. How is AT Funded?

In broad **terms**, there are three funding sources for AT: (1) private, out-of-pocket expenditures; (2) private third-party payment; and (3) government programs. This subsection describes each of these three funding sources in turn.

a. Private, Out-of-Pocket Expenditures

Most AT users pay for their AT out-of-pocket. The most comprehensive national survey on the use of AT, the 1990 National Health Interview Survey on Assistive Devices (NHIS-AD), indicates that 48.2 percent of all AT was funded solely out-pocket, while another 17.9 percent was funded through a combination of out-of-pocket and other payment sources (see Section III below). As described in Subsection 5, many potential users of AT cannot afford some or all of the devices they claim to need. As a consequence, there are a number of proposals that might make AT more affordable (Exhibit IV.B.I).

Exhibit iV.B.I

Options Encouraging the Private Funding of Assistive Technology Devices

- Revolving loan fund
- Lending library
- Low-interest loans
- Private foundations
- Service clubs
- Equipment loan programs
- Charitable organizations
- Tax credits or deductions for purchase
- **IRAs** for AT

Source: (NCD, 1993), (Steinfeld and Angelo, 1992).

b. Private Third-Party Payment

Numerous features of the tax-code and other federal legislation encourage or even require the funding of some AT by third parties, especially employers. In addition, some private insurers provide limited coverage for some AT, particularly DME. The items covered, and restrictions on their use (items must often serve a medical purpose and must be prescribed by a physician), vary considerably among insurers. Typically, fee-for-service insurers, especially Blue Cross and Blue Shield programs, offer more generous coverage than managed care plans. These differences appear to be diminishing as fee-for-service insurers are struggling to meet their competition, by restricting coverage for many services, including **DME (NCD, 1993)**.

Another source of private third-party funding for AT are Workers Compensation (WC) programs. Unlike health insurance plans that typically restrict coverage to items used by beneficiaries with acute health care problems, WC carriers have strong incentives to provide coverage of items and services that help claimants return to work as rapidly as possible. As with private health insurance, WC programs vary greatly in the type of services and items covered. One other important concern is the incentives inherent for many parties in the WC system (e.g., employers, insurers, attorneys, physicians, and workers) to seek large, short-term lump sum settlements rather than settlements paid out over longer periods. Many states

seeking to limit the costs of providing rehabilitative services encourage lump-sum settlements, that in turn often limit the number of claimants using AT and related services (Dewitt, 1992).

c. Government Programs

In Exhibit IV.B.2 we present current government programs that provide funding for AT for workers with disabilities. Some of these programs (Medicare, Medicaid, state vocational rehabilitation programs, etc.) provide direct funding for some AT, while in other cases the federal government encourages funding for AT from private sources through changes to the tax code and other legislation (the ADA, Section 504 the Rehabilitation Act, Targeted Jobs Tax Credits, etc.). We next describe the features of some of the more prominent programs.

Exhibit IV.B.2

**Government Programs, Tax Code Provisions, and Other Legislation
Providing Funding for Assistive Technology**

<p>Public Programs</p> <ul style="list-style-type: none"> • Medicare • Medicaid • Social Security Disability Insurance (DI) • Supplemental Security Income (SSI) • Vocational Rehabilitation Programs • The Veteran's Administration • Workers' Compensation Programs • Individuals with Disabilities Education Act (IDEA)
<p>U.S. Tax Code Provisions</p> <ul style="list-style-type: none"> • Medical Care Expense Deduction • Business Deductions • Employee Business Deductions • ADA Credit for Small Business • Credit for Architectural and Transportation Barrier Removal • Targeted Jobs Tax Credit • Charitable Contributions Deductions
<p>Federal Legislation</p> <ul style="list-style-type: none"> • The Americans with Disabilities Act • The Technology Related Assistance Act ("Tech Act") • Sections 504 and 508 of the Rehabilitation Act • Decoder Circuitry Act • Telecommunications Accessibility Enhancement Act of 1988

Source: National Council on Disability, 1993.

i. Public Programs

The Medicare and Medicaid programs, the largest government health insurance programs, provide limited coverage for some AT. Medicare provides benefits to persons with disabilities who: (1) have received DI benefits for two years;, or (2) become eligible at age 65.⁶⁵ Medicare provides coverage for durable medical equipment (DME), a subclass of AT, defined as:

'equipment which (1) can withstand repeated use, (2) is primarily and customarily used to serve a medical purpose, (3) generally is not useful to a person in the absence of illness or injury, and (4) is appropriate for US8 in the home.'

While it is possible that some Medicare DME (walkers, wheelchairs, canes, etc.) may be useful on-the-job, covered items must serve a primarily medical purpose. Medicare beneficiaries seeking coverage for DME must first secure a certificate of medical need (CMN) from a physician that indicates the DME item is needed to treat a medical problem. For the most part, the Medicare program tries to avoid funding rehabilitative devices or devices used by individuals with chronic conditions and impairments.

Traditionally, Medicaid beneficiaries were deemed either categorically or medically eligible for Medicaid benefits. The categorically needy are persons who receive Medicaid coverage because they receive benefits from the Aid to Families with Dependent Children (AFDC) program or SSI. The medically needy are typically individuals who do not receive AFDC or SSI benefits but who meet a means test (i.e., their income and assets are below prescribed levels) after deducting medical expenses from income. Now, some individuals receive categorical eligibility despite not being eligible for AFDC or SSI.

The distinction between categorical and medical eligibility is important, particularly for Medicaid programs' coverage of AT. The federal government mandates that each state program provide a core set of services but allows states to cover any of an additional set of optional services. States are then free to provide optional services only to the categorically eligible. Among these optional services are prosthetic devices, speech, hearing, and language

⁶⁵ Medicare also provides medical insurance to persons with end-stage renal disease (ESRD).

disorder services and devices, and eyeglasses. In Exhibit IV.B.3, we indicate how many states provide coverage for these AT items to either the categorically needy only or both the categorically and medically needy. Almost all states provide coverage for prosthetic devices and eyeglasses, but roughly a third of these states restrict coverage to the categorically needy.

Exhibit IV.B.3

Number of State Medicaid Programs Providing Coverage for Different Types of Assistive Technologies

Type of AT	Number of States Providing Coverage		
	Categorically Needy Only	Both Categorically and Medically Needy	Total
Speech, hearing, and language disorder services and devices	9	28	37
Prosthetic Devices	15	36	51
Eyeglasses	17	33	50

Source: Committee on Ways and Means, 1994.

The previous discussion of the Medicaid and Medicare programs is directly related to the next two programs, DI and SSI. DI and SSI programs do not directly provide coverage for AT, but a number of special program features encouraging beneficiaries to return to work also encourage the use of AT. Disabled **SSI** beneficiaries can deduct "impairment related work expenses" (IRWE) from their income and assets when determining initial eligibility for **SSI** (blind **SSI** beneficiaries may deduct all work related expenses). These **IRWE** amounts are also deducted from earnings when determining if SSI and **DI** beneficiaries are engaging in "substantial gainful activity (**SGA**).⁶⁶ **IRWE** include the expenses of purchasing, using and maintaining AT that are used to commute to work or are used on-the-job (SSA, 1993).

⁶⁶ In most cases, **DI** and **SSI** benefits cease when beneficiaries engaged in SGA, now defined as earning more than \$500 per month on-the-job. There are some special provisions to continue special

In addition, SSI beneficiaries are allowed to design “plans to achieve self support” (PASS). Those applying for a PASS must describe a plan that will allow the beneficiary to return to work. This PASS may include training and the purchase of new equipment used on-the-job, including AT. Beneficiaries approved from a PASS are then allowed to set aside income and assets, including those from earnings, to fund the PASS, and these PASS funds are not counted towards either SGA or means test limits (Committee on Ways and Means, 1994).

Neither **IRWE** deductions or PASS provide direct funding for AT, and any AT declared as an **IRWE** or as part of a PASS must be used on-the-job or in commuting to work. The financial resources of many DI and especially SSI recipients are not substantial, making it difficult for beneficiaries interested in returning to work to purchase AT and related services even with these incentives. In addition, the requirement that AT declared as **IRWE** deductions or that are parts of a PASS must be used to commute to work or used at work further limits the prospects DI and SSI beneficiaries will pursue these options.

One other major source of funding for AT are vocational rehabilitation programs (**VR**). Each state administers a VR program providing services and other benefits, including funding for AT, to persons who have: (1) medical certification of a physical or mental disabling condition; (2) evidence that the condition is a substantial impediment to employment; and (3) a reasonable expectation that VR services will enhance the person’s employment opportunities (GAO, 1993). The federal government provides roughly 80 percent of the funding for VR programs, with the states picking up the remainder. In **FY91**, \$1.6 billion in federal funds provided benefits to 945,000 persons served by the state VR programs, or approximately five to seven percent of the 14 to 18 million potentially eligible individuals (GAO, 1993).

VR programs are supposed to screen applicants to determine their eligibility for benefits. In 1990, roughly 57 percent of applicants were accepted, and of those accepted, 69 percent had severe disabilities (GAO, 1993). A substantial fraction of those approved for services either do not complete the rehabilitation program designed for them, or drop-out of

transitional benefits, particularly Medicaid and Medicare benefits, for beneficiaries who attempt to leave the **DI** and **SSI** rolls permanently.

the program entirely before receiving any benefits beyond initial screening and diagnosis (Dean and **Dolan**, 1991).

Two sections of the Rehabilitation Act of 1986 have important implications for the use of AT. Section 504 requires state VR programs to develop a three-year plan describing how the program will provide more AT to clients. In addition, the use of AT must be considered when determining whether an applicant is eligible for services. Finally, Section 504 requires that rehabilitation engineering technology be one of only four services that VR programs must provide regardless of the costs and benefits of using these technologies. Section 508 requires that the federal government must provide workers with disabilities with access to electronic equipment equivalent to that of workers without significant impairments, and should purchase equipment that incorporates these features.

Several other programs deserve brief attention. The Veteran's Administration provides coverage for DME and AT to treat impairments and disabilities that are service-related. Some Workers' Compensation programs include similar provisions for DME and AT, but often require that the AT be used on-the-job by beneficiaries. In addition, Part B of the 1988 Individuals with Disabilities Education Act (IDEA) allows states to include AT as part of the services offered by special education and related programs, which in turn allows states to provide these AT to special education students using Medicaid funds.

ii. Tax Code Provisions

In Exhibit IV.B.2 we list some of the more prominent features of the tax code that encourage the purchase of some AT. Both individuals and businesses may be allowed to deduct or even to claim a tax credit for the expenses associated with purchasing some AT. The deductions and credits may also be provided to employers who offer employment to persons with disabilities.

iii. Other Legislation

A number of other federal laws devote federal funds or mandate other parties to provide funding for AT. Among the most important recent legislation is the Americans with Disabilities Act (ADA) of 1990. Among its most important provisions encouraging the use of

AT is its “reasonable accommodation” mandate. The ADA requires employers of 15 or more employees to provide “reasonable accommodations” to current or potential workers with disabilities. As an employer mandate, the ADA devotes no federal, state, or local funds to the provision of AT.

Reasonable accommodations include the redesign of the workplace, the purchase of equipment (including AT), and personal assistance with the job related tasks of workers with disabilities. These reasonable accommodations may also include modifying the requirements of certain jobs to meet the special needs of workers with disabilities. While it is still too early to define what a “**reasonable** accommodation” is or what this implies for AT, over time the ADA should result in the use of more AT on-the-job.

While not providing direct funding for AT, the Technology Related Assistance Act of 1988 (the “Tech Act”) has important implications for the use of AT by workers with disabilities. Title I of the Tech Act authorizes the U.S. Department of Education to provide grants to states on a competitive basis, to establish and operate consumer-responsive, state-wide programs to provide persons with disabilities and their families with information about the availability of AT and related services. By 1992, 42 states were operating Tech Act programs, and there was a clear expectation that all 50 states and U.S. territories would have a program operating by 1995 (ABLEDATA, 1992). Title II of the Tech Act mandated that a study be funded on the financing of AT and related services by persons with disabilities. The National Council on Disability completed this study after 19 months of research (National Council on Disability, 1993).

Two other acts have special implications for persons with hearing disabilities. The Telecommunications Accessibility Enhancement Act of 1988 implemented a system of TDD (telephone communication devices serving the individuals with hearing impairments), including providing all federal agencies with **TDDs**, and publishing a directory of federal TDD access numbers. The Decoder Circuitry Act of 1990 required all televisions sold after July 1, 1993 to include a close-caption decoder, although it did not mandate that all broadcast signals include a closed-caption signal.

2. Who Uses AT On-the-Job, and What Types of AT Do They Use?

In Exhibit gIV.B.4 we reproduce one taxonomy linking specific impairments to appropriate AT (Dewitt, 1991). While graphics such as Exhibit IV.B.4 are in some respects “laundry lists” with their attendant problems, one can still draw a few important general points from these types of lists:

Exhibit IV.B.4

Possible Assistive Technology Devices Used by Persons with Specific Impairments

Type of Impairment	Problems Associated with Impairment	Possible AT to Overcome Functional Limitations Associated with Impairment
Hearing	Difficulty in understanding usable speech, identifying sounds, discriminating between sounds -- with or with amplification, deafness	Unambiguous labels, signs, written communications, electronic mail/Fax mean less need for verbal communication; maximize face-to-face communication; lower ambient noise in workplace; telephone handset receiver amplifier, signal light for incoming calls, visual displays for call status, TDD ; vibrating pager; additional amplification for face-to-face communication, pocket-size transmitter/receiver, body aid; inductive loop; infrared or FM systems for meetings, large-group situations; captioning of audio-visual materials to capture spoken dialogue
Vision	Difficulty reading, writing, or printing, recognizing objects or faces, distinguishing between colors -- with or without corrective or glasses, total blindness	Even, non-glare lighting to provide sufficient lumens, and maximum contrast; large-print labeling, signs with high contrast letters (white or yellow on black or dark blue); tactile labels, signs with raised characters and Braille; reduce sole reliance upon written/printed information -- closed circuit TV magnification for reading print, enhancing handwriting; redundant audio signals for visual displays such as machine gauges, shopping mall directories, room numbers, exits, restrooms, ATMs ; optional voice prompts for telephone system, Fax, photocopier; synthetic -speech output, large print or electronic Braille access to PCs, mini-computers, and mainframes; electronic mail, local area networks, optical document scanning to reduce reliance upon print media, especially dot matrix; telephones with large LED rather than LCD arrays, raised nibs for important keys; voice prompts and/or audible status signals; voice activated computers; voice response word processing; speech recognition word processing
Speech	Capability of only soft, indistinct, or very slow speech; non-verbal or non-vocal communication	Unambiguous labels, signs, written communications, electronic mail/Fax mean less need for speaking; maximize face-to-face communication; PC with synthetic speech output; speech-amplified telephone handset; speaker phone operator headset for artificial larynx users facilitates writing with a free hand; portable speech amplifier, other augmentative communications -- boards, cards for common words/messages/symbols.; laptops with LED, speech output, built-in printer; continuous-loop tape recorder for short messages; TDD for telephone conversations

Exhibit IV.B.4 (continued)

Possible Assistive Technology Devices Used by Persons with Specific Impairments

Type of Impairment	Problems Associated with Impairment	Possible AT to Overcome Functional Limitations Associated with Impairment
Cognitive	Impaired ability in perception of visual, auditory, or tactual information; impaired memory ability; difficulty in sequencing; impaired ability in reasoning or understanding spoken or written information	Maximize use of multisensory information paths, e.g., audible and visual signs; confirming beep tones for telephone-programming features; unambiguous labels, signs, written communications; minimize distractions, e.g., high ambient noise, clutter; telephones with single-button dialing using pictures or familiar symbols to aid in identifying person/use; sufficient time to respond to electronic messages, e.g., voice mail, computer-error styles; optical document scanning to PCs, with or without programmable font styles; optical document scanning to PC; macros, spell checking, word prediction, grammatical software; voice-recognition input for PC; mouse, joystick, pull-down menus, clear graphics
Mobility --head	Difficulty looking up, down, or to the side	Rocker switches, large-handle slide controls, push-action door latches decrease twisting, gripping motions; large handles on drawers; nonslip surfaces; concave surfaces for areas to be depressed, e.g., telephone keypads; computer keyboards, office and machine-equipment controls; gloves with gripping surfaces; e.g., Velcro; printer with single-sheet feeder rather than tractor; store computer data on hard disks rather than floppies; key guards to avoid accidental keystrokes; adjust keyboard sensitivity, expanded keyboard or emulator; software to enhance multiple keystroke functions, word abbreviation/prediction; mouse, alternate key mapping; copy holder with gauges for precision measuring; speaker phone, gooseneck cradle switch, headset, single-digit or voice activated dialing; portable note taker; limit force required for activating, e.g., force-2 use levers; powered letter openers, staples
Mobility -- upper extremities	Absence of limbs, complete paralysis, severe in coordination, impaired mobility of arms, hands or fingers	Lazy Susans, pull-out shelves, suspended storage; mechanical reachers; powered lift tables for positioning heavy work, extensions for hard-to-reach controls; environmental control units; telephone headset, speaker phone, gooseneck for holding handset and cradle switch, "sip and puff" switches/other alternative switches; back pack, shoulder bag, wheeled cart for carrying

Exhibit IV.B.4 (continued)

Possible Assistive Technology Devices Used by Persons with Specific Impairments

Type of Impairment	Problems Associated with Impairment	Possible AT to Overcome Functional Limitations Associated with Impairment
Mobility -- lower body	Impaired mobility, range of motion of strength for turning, bending, balancing, or sitting	Appropriate chair for individual, e.g., height, size, arms, angle, castors (on/off); seat belts; cushions; increase angle of work surface, raised edges to prevent slippage; also, many items listed above for upper-body limitations such as shoulder bag/backpack, reach extenders, telephone/PC-assistive technologies
Mobility -- lower extremities	Absence of limbs, complete paralysis, slowness of gait, impaired ability to kneel, rise, walk, stand or climb stairs	Wheelchair, walker, supports while standing; rising assist devices, cushions, grab bars, lap trays; room for wheelchair under desk/table, public telephone, work areas (including footrest); also many items listed above for upper-body limitations such as shoulder bag/backpack, reach extenders, telephone/PC-assistive technologies

Source: (Dewitt, 1991).

- many AT are commercially available products used by workers with and without significant disabilities;
- the continuum of severity of impairment usually corresponds to the number and complexity of AT used and the intensity and frequency these items are used;
- **“access”** rather than **“adaptive”** AT are often more useful to workers with disabilities,

We develop each of these points below.

a. AT is Used by Persons with and without Significant Disabilities

It is often difficult to identify what are and are not AT. For example, many labor saving devices or new technologies that replace or enhance human activities become AT when used by workers with disabilities (Ward, 1992). These include: (1) improved visual displays; (2) computer hardware and software programs with auditory and visual clues; (3) telecommunication devices such as pagers, computer networks, portable phones, etc.; and (4)

ergonomically designed work stations -- customized chairs, office furniture, computer displays, etc.

Many AT allow workers with disabilities to forgo or eliminate their use of personal assistance services (PAS) on-the-job. For example, voice-activated computer systems may reduce the needs of workers with visual impairments for readers. This substitution of capital (AT) for labor (PAS) may be cost effective, particularly if the costs of AT declines as the market for these products increases. In addition, the job accommodations provided by AT are often more flexible than those provided by PAS -- i.e., **with** AT, there is no need to coordinate the schedules of clients and caregivers.

There are also other products that typically are not considered to be AT that assist many workers with disabilities to complete the requirements of their jobs. Many workers with disabilities use drugs to alleviate symptoms and other functional limitations associated with their impairments that make work harder or even impossible to complete. For example, antidepressant and other psychotropic drugs can help people with affective disorders and other mental impairments function better. In addition, individuals with cardiovascular, musculoskeletal, and other medical problems (e.g., diabetes) can also be treated with drugs that allow them to continue to work.

Drugs are often better able than AT to help some workers with disabilities remain on the job. In particular, AT is not as successful helping workers with cognitive and other mental impairments to continue to work (NCD, 1993) as it is for workers with physical impairments. Most AT that can assist workers with mental impairments help these workers process information, often by providing information in many formats -- i.e., both visual and auditory, or seek to simplify the information to make it easier to understand (Dewitt, 1991). AT, however, often cannot help workers with mental impairments with some of the stronger symptoms they experience, such as depression or anxiety.

The path between developing new AT and developing commercial, labor saving devices moves in both directions. Often, a new labor saving device or a product innovation will allow a new group of persons with disabilities to complete additional tasks on the job. For example, workers who are deaf or hard of hearing previously had difficulty using remote call-in devices such as hand-held pagers, that would allow them to remain in contact when away from

phones -- they often had trouble realizing they were being paged because they could not hear the "beep." These individuals, however, can use vibrating pagers (Dowler and Hirsh, 1993). Similarly, optical scanners allow the visually impaired to convert text documents to electronic files that then can be converted into Braille or other media they can interpret (Hauger, 1991).

At the same time, products developed originally for use by workers with disabilities may find broader commercial markets. For example, there are many technologies (special keyboards, mouthsticks, laser sensors controlled by head movements, speech recognition devices, etc.) that allow workers with severe physical impairments to use personal computers. Many of these technologies, however, work slowly -- i.e., it is difficult to enter text and other information rapidly -- and are often tiring to use. A new technology, the **Kurzweil Voice Report System (KVR)**, may allow some of these individuals with severe physical impairments to enter data more rapidly (Tan and Horowitz, 1993). The KVR includes a voice recognition system with a large vocabulary and report generation software that allows the user to enter data like other voice recognition systems. What is more innovative about the **KVR** is the inclusion of a "voice trigger" system linked to blocks of standard text. This allows the user to use a few (often one) keystrokes to enter a large block of standard text, increasing the speed of data entry. It is clear that users who have no significant physical impairments could also use similar sophisticated software to increase their data entry speed for standardized reports.

b. Workers with more Severe and Numerous Impairments often Use more AT

There are increasingly fewer technological limits restricting workers with severe physical impairments from entering the labor market, often including "competitive" employment. Many workers with disabilities with sufficient motivation can find a way to work, often with the help of AT, provided that these individuals have access to necessary technologies and other services and can find a willing employer.

Several recent case-studies underscore this point. A series of programs are now using AT to help farmers continue to farm, often despite the severe physical impairments of some of those served and the challenging nature of the work and **work** environment (**Wilkomm 1992**), (Freeman, Brushnighan, and Field, 1992). Many individuals who are blind or visually impaired can now work in jobs that require them to read and write extensively, often with very little or no

help from personal assistants, given advances in technology (**Kurzweil** readers, optical scanners, speech to text converters, text to Braille converters, etc.) (Beattie, **1991**), (**Scadden, 1991**), (Vanderheiden, **1991a**), (Hauger, **1991**). As mentioned above, new technologies are also allowing workers with severe physical impairments to use computers and other modern telecommunications technologies,

C. **“Access” Rather than “Adaptive” AT are often more Useful to Workers with Disabilities**

Traditionally, workers with disabilities were expected to “adapt” to the work environment or have that environment itself **“adapted”** to their needs. Perhaps the simplest examples are the mobility impaired, including wheelchair users, who were first expected to cope with physical barriers that impeded their progress to and from work and at the workplace itself. Through time, some aspects of their environment began to change, to allow workers with mobility impairment to commute to the job and navigate the workplace -- i.e., modifications to public transportation or special transportation **services**, curb cuts and ramps, elevators and stairlifts, customized workstations, etc.

While these “adaptations” often permit workers with disabilities to function, the nature of the adaptations themselves often isolates these individuals from their fellow workers and the rest of society. The adaptation itself acts as a signal that workers with disabilities are different, and the differences can manifest themselves as social stigma (Kauppi and Dzubak, **1992**), (Ward, **1992**), (Phillips and Zhao, **1993**), (Vanderheiden, **1991a**).

Instead of “adapting” to the workplace or “adapting” the workplace itself, several studies suggest that workers are better served by AT that provide “access” to the workplace. While the difference between “adaptation” and “access” is one of degree, access technologies allow workers with disabilities to function in the workplace much as other workers do. Providing workers with disabilities with access to the workplace in turn may reduce the perceptions that they are “different” from their coworkers. For example, a three year demonstration project funded by **NIDRR** called “COMPETE” (e.g., Computer Preparation: Evaluation, Training, and Employment) provided individuals with cognitive impairments with training on current **word-processing** and other office software programs. Of the 17 job trainees who completed the program, 14 were employed, while the other three enrolled in college. More than half of those

employed had computer related jobs, but the skills learned through the program also helped other trainees find jobs or enroll in college courses (Mann and Svorai, 1994).

One growing field in access technologies concerns innovative computer interfaces for users with disabilities (NIDRR, **1992**), (Vanderheiden, **1991a**), Horstmann, Levine, and Kett, **1990**), (Vagnoni and **Horvath**, 1992). In the past, researchers often focused on specially designed computer software and hardware that allows users with disabilities to use computers and other telecommunication devices. Often, however, these customized systems did not allow their users to communicate with other workers. Given advances in computer networking, telecommunications, and similar technologies, the inability to communicate with other users was a significant problem for computer users with disabilities.

Currently, the focus is shifting to modifying hardware and software to allow users with disabilities to use standardized software packages and other commercial technologies. Many software firms are building in features into their word processor, spreadsheet, networking, and other "office" software packages that allow potential users with disabilities to use these products directly (Vanderheiden, **1991a**). Section **508** of the 1988 Rehabilitation Act, that mandates that federal purchasers of electronic equipment must select items providing access to all users, including those with disabilities, could spur future developments in this area (NCD, 1993).

3. How Are AT for Workers with Disabilities Chosen?

There are a number of models now in use to match workers with disabilities with appropriate AT (Phillips, **1989**), (Steinfeld and Angelo, **1992**), (**Kimmel, Ourand**, and Wheatley, **1992**), (Lysaght and **Hurlburt**, 1992). Most of these models, however, share several characteristics. For example, most models stress the need for clear communication between clients, their employers, and AT professionals. All need to agree about the specific requirements of each job, including any modification of those requirements to accommodate the special needs of the clients. Next, the client and any professionals that might be involved (physical, occupational, and speech therapists, industrial engineers and workstation designers, architects, rehabilitation engineers, manufacturers of AT and other products, etc.), should conduct a needs assessment - i.e., an evaluation of the client's abilities, limitations, and any special needs.

Developing a plan that then matches client needs to AT and other services is critical. AT and other services are often purchased before assessing their potential effectiveness in helping clients meet their job responsibilities. It may also help clients and professionals **servicing** them to see previous workplace adaptations -- these are often available from public databases such as **ABLEDATA** and the Job Accommodations Network (JAN). **ABLEDATA** is a database funded by **NIDRR** providing information on currently available AT, including their potential use on-the-job. In addition, **ABLEDATA** collects information on funding sources, client needs, and other topics, and publishes this information in fact sheets (ABLEDATA, 1992).

The JAN is another publicly funded database collecting information on successful job accommodations, including the types of clients served, their needs and the requirements of their jobs, and the types of AT and related services used. JAN also surveys users of its **services**, and has found that over a third of those responding indicated that it used data provided by JAN to design an accommodation. Of those using the information provided by JAN to design an accommodation, over three fourths found the information provided to be **“extremely or very effective.”** These accommodations were often not costly (mean costs through October, 1992, were \$1,000, with median costs of **\$200**), while estimated savings were substantial (mean savings through October, 1992 were over \$27,000, with median savings of \$7,000) (The President’s Committee on Employment of Persons with Disabilities, 1994).

It is also important that proposed accommodations be tested by their users. Ideally, workers with disabilities should be provided with “try before you buy” opportunities, to test out equipment, personal services, and other modifications, before expensive resources are permanently committed. There are some national centers providing access to AT for potential users (NARIC, **1993a**).

Workers with disabilities also need to be trained in using the AT and services included in an accommodation. Almost any worker has had at least one bad experience with supposedly “user friendly” technology purchased by their employers that is difficult to understand and use. These problems are often magnified for workers with disabilities, who may need to use much more complex equipment than other workers. In addition, their

functional limitations often make it more difficult for workers with disabilities to learn to use new technologies. Training often needs to accompany the purchase of AT.

Finally, workers with disabilities should not be abandoned after AT and other services are purchased for them. Over time, the needs of clients can change, as the functional impairments improve or worsen. New technologies may better **serve** client needs. In addition, some AT may prove difficult to use and unreliable. These factors each suggest the need for **followup** and periodic reassessment of the needs of workers with disabilities, and how those needs can best be met, including the use of AT.

One example of an employer initiative to increase the employment of people with disabilities by using AT is the Department of Defense (**DOD**) Computer/Electronic Accommodation Program (CAP). The CAP program has a goal of increasing employment of people with disabilities to two percent of **DoD's** civilian workforce. In 1990, DOD programmed \$10.7 million for **FY90** through FY94, and has programmed additional funds through 1999. CAP services include the purchase of specially adapted computer and telecommunications equipment, sign language interpreters, using software to solve access problems, and providing training and personal services in using these equipment. During the first five years of operation, CAP provided accommodations to over 6,000 workers, of whom 64 percent had hearing impairments, 26 percent had visual impairments, and eight percent had mobility and other impairments (Defense Medical Systems Support Center, undated).

4. **Are There Unmet Needs or Other Barriers for AT Users?**

a. Unmet Needs

Articles by workers with disabilities who use AT and/or advocates for the expansion of funding for and the use of more AT, contain a clear consensus that the many needs are not being met (Enders, **1990**), (NCD, **1993**), (Phillips, **1989**), (Ward, 1992). As we discuss in more detail below in Section C, tabulations from the 1990 **NHIS-AD** bear this out. Almost 22 percent of respondents age 18 to 64 who indicated that they needed to use AT either did not use any AT or needed to use additional AT.

By far the most important cause of unmet needs for AT is expense. As indicated above, most AT is purchased out-of-pocket by its users, and the expense of some items is quite large, especially given the relatively low incomes of many workers and especially potential workers with disabilities (NCD, 1993). The 1990 NHIS-AD suggests that over 60 percent of persons with unmet needs cite lack of affordability as the reason for their unmet needs (Laplante, Hendershot, and Moss, 1992).

Along with expense, many workers with disabilities are unaware of products now available that could suit their needs. For example, one study conducting focus-group interviews with working-age persons with disabilities asked the interviewees for “wish lists” of AT not now available. In many cases, the researchers informed these persons that the desired items were available, including some at very low cost (Ward, 1992).

If workers and potential workers with disabilities cannot afford the AT they “need,” the question then arises if other sources of payment, including government and third parties, should provide some or full funding for these unmet needs. In large measure, this debate depends on whether workers with disabilities have a “right” of access to AT. In some degree, the federal legislation described above in

Subsection 1 has addressed this issue. For example, the 1990 Decoder Circuitry Act guarantees the hearing impaired access to televisions with close captioning capability, and spreads these costs across all individuals by mandating that all new televisions include these features. More importantly, the ADA states that workers with disabilities have a right to “reasonable accommodations” from their current and potential employers (provided that the employer has at least 15 employees).

At the same time, these “rights” themselves are ambiguous and can be interpreted with considerable latitude. Many analysts have already commented on what “**reasonable**” may mean. For example, many on one side of the issue stress that most accommodations for workers with disabilities in the past were not costly. This does not imply, however, that accommodations in the future will be as cheap. It is only common sense that on the margin employers and employees found it mutually beneficial to make accommodations in the past that were not costly because these accommodations were completely voluntary. It is less clear in the future when employers are compelled to fund “reasonable” accommodations if potential

workers with disabilities who are more costly to accommodate will start seeking jobs (Weaver, 1991).

b. **Other Barriers**

It is too easy to view the use of AT by workers with disabilities as a problem in engineering -- i.e., define the problem, design the solution, and then implement the solution. As we have already mentioned, many AT 'solutions' stigmatize their users and isolate them from fellow workers and the rest of society. Simply by their using AT, workers with disabilities are often singled out by others as being 'different.' Many workers with disabilities are thus often reluctant to use some AT. There is clearly a psychological and social dimension to the problem of encouraging workers with disabilities to use AT.

Another problem with AT is that they are often more useful for workers with physical rather than cognitive disabilities. For example, two studies of vocational rehabilitation programs both discovered that the effect of these programs on **the** probability of being **employed** and earnings is higher for persons with physical rather than mental impairments (GAO, 1993), (Dean and Dolan, 1993). Part of the problem faced by many workers with mental disabilities is the changing nature of work itself. With work increasingly requiring more cognitive than physical activity, workers with physical impairments can often use AT to substitute for the declining number of physical tasks and to access cognitive technologies **on-**the-job.

At the same time, technological developments may also leave workers with physical disabilities employed in jobs requiring cognitive reasoning behind. One example of this problem are changes in computer software and technology. First, everyone is familiar with the problems associated with "upgrading" a current computer system. These problems are often magnified for workers with disabilities who use additional programs or special modifications to current software packages that are not "upwardly compatible" (Horstmann, Levine, and Kett, 1990).

In addition, new graphics techniques pose problems for the visually impaired (Vanderheiden, 1991 a and 1991 b). Traditionally, computers stored data in standard formats where each character is represented by a special code -- i.e., ASCII or EBCDIC. These

formats allow the substitution of one representation of each character with another -- i.e., from ASCII to Braille or raised lettering. Currently, many more modern and powerful computers do not store characters at all, but instead store the pictorial representations instead (e.g., the individual colored dots, or pixels, on a computer screen). This allows both character and graphic data to be stored, retrieved, and transmitted in the same format. Unfortunately, current Braille or raised letter conversion systems cannot recognize characters stored in this way, nor can they interpret graphic data. In addition, many more software packages incorporate graphics -- i.e., colors, icons, graphic images, etc., that also cannot be translated easily into formats interpretable by the blind or visually impaired.

One other barrier for many workers with disabilities is the lack of “universal design” for many products. Many common products, such as workstation items (e.g., desks, chairs, computers, phones, etc.), the interiors and exteriors of buildings, transportation systems, and so on, are designed to be used by “average” users. In this context, average means users free from most physical impairments and whose height and weight lie within a certain range. It is often expensive to accommodate these items to “non-average” users, including people with disabilities, after they have been designed, but broadening the definition of potential users during the design phase can mean these products can be used by more users at little to no additional cost. This is “universal design.” Public policy can play a role in encouraging designers to adopt universal design principles in new products, that in turn allow more individuals, including those with disabilities, to use new products as they become commercially available (Dewitt, 1992).

5. Areas for Future Research

a. Financing AT

Our brief description of the financing of AT in the U.S. underscores its somewhat chaotic and disorganized nature. Numerous federal and state programs provide coverage for some AT, while federal legislation provides additional incentives for employers and individuals to provide additional funding. A deeper investigation of this issue could reveal ways to rationalize and stream-line the financing of AT, including the use of more common definitions of AT, clearer guidelines of the responsibilities of different programs or even the integration of some programs, etc. For example, the National Council on Disability has proposed that

Medicare, Medicaid, SSI, and DI adopt the Tech Act's definition of AT when deciding which items to cover (NCD, 1993).

Additional research could also be devoted to the features of the tax code and other legislation encouraging the private funding of AI. For example, has the ADA had any measurable impact on the use of AT on-the-job? How successful have individual tax deduction and credit programs been in encouraging the use of AT? Finally, it could be worthwhile to fund demonstration projects to determine if some of the private options we listed in Exhibit IV.B.2 are effective in targeting and increasing the use of AT.

A consistent weakness of many sources of funding for AT are requirements that these devices be used either to commute to work and/or on-the-job. While these restrictions may make sense for some sources of funding (e.g., employers), these limits ultimately may result in less AT being used and fewer employment opportunities for current and potential workers with disabilities. The distinctions between work and non-work activities are blurring, often making these restrictions somewhat ad hoc and difficult to enforce. In addition, workers with disabilities who have limited access to AT off the job may have difficulties finding the time and energy to return to work. Future research investigating whether easing these restrictions, particularly for publicly funded programs, improves employment opportunities for people with disabilities may produce interesting results. The experiences of other countries with financing AT may provide potential models for redesigning current public programs that provide funding for AT in the U.S. In addition, it also might be possible to redesign public programs or features of the tax code to help split the costs of AT for workers between the government and private employers.

b. The Use of AT by Workers with Disabilities

The National Institute on Disability and Rehabilitation Research (NIDRR) funds a series of technologically related projects of national significance as well as rehabilitation engineering centers that are developing and testing new AT and other approaches to help workers and other people with disabilities. While it will be interesting which technologies and services prove to be the most effective in a clinical/engineering sense (e.g., do they get the job done), it would also be interesting to determine what approaches are most cost-effective. Cost-effectiveness analyses could consider not only specific technologies and services but also process. By

process, we mean issues such as targeting, needs assessment, efficient service delivery and followup.

Designing useful cost-effectiveness analyses is difficult. Because of moral and ethical considerations, it is often not possible to use classic experimental methods where the outcomes of randomly assigned treatment and control groups are compared. Instead, less reliable quasi-experimental methods and sophisticated statistical models controlling for selection biases and other factors must often suffice.

Another option would be to pursue case studies of organizations that now provide AT and related services to people with disabilities. These focused case studies would concentrate on the employment outcomes of those who do and do not use AT. In particular, these case studies would be interested in whether using AT appears to better the employment opportunities of people with disabilities.

C. Unmet Needs and Other Barriers

Below in Section C we suggest how currently available data (the 1990 NHIS-AD) could be used to study the relationship between unmet needs for assistive devices and the employment outcomes of workers with disabilities. One other area of future research in the area of "unmet needs and other barriers" could be to encourage the development of standards in computer graphics and telecommunications. Currently, there is great interest in the development of "graphic user interfaces" (GUIs) (Vanderheiden, 1991 b), that would permit the translation of graphic data into other media (e.g., aural or tactile) that could be interpreted by workers with disabilities, especially the visually impaired. It would be easier to develop these GUIs if a graphics standard were adopted by software developers. Future research in this area might suggest some possible models as well as potential pitfalls -- e.g., the adoption of a standard might have a chilling effect on continuing innovation.

More research is also needed investigating how much people with disabilities, their employers or potential employers, and professionals who design job accommodations now know about currently available AT. It would be especially interesting to know how these interested parties came to learn what they know. In addition, it would also be worthwhile to

investigate how potential users and purchasers of AT learn about newly available technologies.

C. Tabulations on the Use of Assistive Technology from Public Data Sources

During our review, we identified one public, micro data sets that include information on the use of AT. This is the 1990 National Health **Interview** Survey on Assistive Devices (**NHIS-AD**). In this section, we review the features of the 1990 NHIS-AO, and then present some current tabulations from it.

1. The 1990 National Health Interview Survey on Assistive Devices (1990 NHIS-AD)

a. Data Summary

The 1990 NHIS-AD was a one time supplement to the annual National Health Interview Survey (NHIS). The **NHISAD** was cosponsored by the National Center for Health Statistics (NCHS) and the National institute of Disability and Rehabilitation Research (NIDRR). The Bureau of the Census conducted the field interviews.

The 1990 **NHIS** is a nationally representative, household interview survey on health status, the presence of specific health conditions and diseases, demographic data, insurance status, and labor force participation -- including hours worked, occupation, and industry. In 1990, 46,476 households, or **95** percent of those contacted, responded to the survey. Responding households included nearly 120,000 individuals (NCHS, October, 1990).

The NHIS-AD asked each responding household a series of questions concerning their use of AT and if their homes included "home accessibility" features. Among the 120,000 person sample, 6,310 indicated using at least one ATD, and 3,239 lived in a home with at least one home accessibility feature (Laplante et al., 1992).

When interviewing households, the NHIS-AD interviewer began with the following preamble: **"The** next questions are about the use of devices to help persons with physical disabilities or impairments." Next, the interviewer asked for a series of particular AT: "Does anyone in the family now use (the device) of any kind," followed by "Who is this? Does

anyone else now use (the device)?" The interviewer then asked the respondent to identify any other AT used to cope with the disability or impairment addressed by each device (Laplante et al. 1992).

While the slant of the questions clearly encouraged respondents to identify only devices used by persons with physical disabilities and impairments, it is not clear what these disabilities or impairments are, or if household members without any physical disability or impairment also used one of these items. In addition, the NHIS-AD did not specifically include people with mental disabilities or impairments in these instructions.

The NHIS-AD also posed a series of questions concerning "home accessibility features." These features include: (1) ramps; (2) wider entrances and passages; (3) push bars; (4) private elevators or stairlifts; (5) raised toilets; (6) special handrails; etc. The **interviewer** asked the respondent "Please tell me if this home is equipped with any special features designed for disabled persons," and then handed the respondent a card listing these home accessibility features. Once again, it is possible that people with no physical disability or impairment lived in homes with these items.

There are at least two other interesting features of the 1990 NHIS-AD. First, it asked respondents about the sources of payment for AT and home accessibility features. In addition, it asked respondents if they or other family members needed but lacked AT.

Clearly, the NHIS-AD is a particularly rich data set. The associated data collected by the **NHIS** allows one to construct interesting cross-tabulations, and potentially conduct more sophisticated analyses, of the use of AT and home accessibility features for different groups. Perhaps most important for the purposes of this paper, one could analyze the use of AT by persons who are working and who have one or more specific disabilities or impairments. Part of such an analysis could include comparisons of the use of AT by workers with disabilities of different genders, who work in different industries, and have different types of health insurance coverage. To date, we are not aware of anyone conducting analyses of this type.

b. Current Tabulations

Below we have included some tabulations from the 1990 **NHIS-AD** from two sources. The first source is a NCHS publication (Laplante et al., **1992**), while the second is some special tabulations made available to us by Michelle Adler at the Office of the Assistant Secretary of Planning and Evaluation (ASPE) in the U.S. Department of Health and Human Services (HHS). Unfortunately, neither source compared the use of AT for workers and non-workers, or for people with disabilities who are working and not working.

In Exhibits V.C.1 and V.C.2 we reproduce tabulations of the number of users of AT and home accessibility features by device and the age of the user. While these tabulations are interesting, one cannot tell from them what fraction of persons of different ages are users of particular AT or home accessibility **features**.⁶⁷ For the purposes of this report, the most important findings in Exhibits V.C.1 and V.C.2 include:

- **The use of AT is common to all age groups** -- while over half (52 percent) of AT users are age 65 and over, 17 percent are 25 to 44, and 23 percent are 45 to 64. It is plausible that some AT users age 25 to 44 and even 45 to 64 are in the labor force.
- **The use of some AT is highly concentrated by age** -- it is not surprising that persons over 65 use a majority of mobility, hearing, and visual AT. What is more interesting is the heavy use of AT that are most likely to be valuable to workers -- such as adapted typewriters and computers, and adapted automobiles, by people age 25 to 44 and 45 to 64.

In Exhibits V.C.3 and V.C.4 we replicate tabulations on source of payment for AT from Laplante et al. and Adler. The majority of users of AT and especially home modifications pay for all or part of the expenses of these items out-of-pocket. In addition, over 40 percent of persons using AT with Medicaid coverage still paid for these AT out-of-pocket.

⁶⁷ In Exhibit V.C.5, we reproduce **some** crude tabulations indicating the percentage of different age groups who use **assistive** devices.

Exhibit IV.C.I

Number of Persons Using Assistive Technology Devices Living in Homes with Accessibility Features: 1990 NHIS-AD: (thousands)

Assistive Technology Device or Home Accessibility Feature	Age Group					
	All Ages	24 and Under	25-44	45-64	65-74	75+
Assistive Technology Devices						
Any Device	13,128	1,048	2,228	3,022	2,756	4,073
Anatomical Devices	3,732	646	1,387	1,052	388	277
Leg brace	882	208	288	208	97	61
foot brace	186	71	44	30	29	12
arm brace	210	28	87	62	20	13
hand brace	208	28	93	63	22	4
neck brace	299	27	118	109	27	18
back brace	1,173	68	420	460	128	98
other brace	849	241	369	146	46	48
artificial leg or foot	184	8	28	64	47	38
artificial arm or hand	34	12	4	8	7	2
Mobility Devices	6,403	240	609	1,385	1,435	2,736
crutch	671	87	173	210	137	64
cane or walking stick	4,400	31	319	1,011	1,032	2,007
walker	1,687	34	72	276	350	956
wheelchair	1,411	139	188	604	324	476
scooter	64	8	11	18	18	11
other mobility tech.	254	18	28	68	57	85
Hearing Devices	3,987	152	257	818	1,142	1,618
hearing aid	3,782	148	228	743	1,102	1,562
TDD/TTY	173	22	23	56	24	48
special alarm	76	7	17	24	5	23
other hearing tech.	584	24	56	138	142	205
Vision Devices	261	12	87	39	32	111
white cane	109	2	43	17	14	32
other vision tech.	177	10	34	24	26	82
Speech Devices	34	8	2	4	8	11
Other Types of Tech.	1,331	158	277	333	296	269
adapted typewriter or computer	48	12	24	8	0	4
adapted automobile	211	19	71	60	51	11
other tech.	1,138	140	196	289	257	257
Home Accessibility Features						
Any Feature	7,102	1,395	1,272	1,484	1,284	1,667
ramps	2,109	578	457	488	321	267
extra-wide doors	1,651	397	333	410	249	263
elevator or stairlift	409	66	28	45	97	173
handrails	3,396	425	420	686	778	1,086
raised toilet	1,324	125	133	285	278	505
adapted door locks	410	57	29	90	86	148
towered counters	242	52	47	59	22	62
slick-resistant floors	212	40	41	79	25	27
other feature	1,595	313	313	345	293	330

Source: (Laplante et al. 1992). The subcategories in this table do not sum to the category totals, because individuals may use one or more AT or home accessibility features in each subcategory,

Note: A TDD/TTY is a typewriter like device the deaf use to communicate over phone lines.

Exhibit IV.C.2

Percentage Distribution of Persons Using Assistive Technology Devices
or Living in Homes with Accessibility Features: 1990 NHIS-AD

Assistive Technology Device or Home Accessibility Feature	Age Group					
	All Ages	24 and Under	25-44	45-64	65-74	75+
Assistive Technology Devices						
Any Device	100.0%	8.0%	17.0%	23.0%	21.0%	31.0%
Anatomical Devices	100.0%	17.3	36.6	28.2	10.4	7.4
Leg brace	100.0%	24.2	33.4	24.2	11.2	7.0
foot brace	100.0%	38.4	23.8	18.1	15.6	6.5
arm brace	100.0%	13.4	41.4	29.4	9.5	6.2
hand brace	100.0%	13.0	44.6	30.0	10.6	1.9
neck brace	100.0%	9.0	39.6	36.5	9.0	6.0
back brace	100.0%	5.8	35.8	39.2	10.9	8.3
other brace	100.0%	28.4	43.5	17.1	5.4	5.7
artificial leg or foot	100.0%	4.3	15.2	34.6	25.5	20.6
artificial arm or hand	100.0%	35.3	11.8	23.5	20.6	5.9
Mobility Devices	100.0%	3.7	9.5	21.6	22.4	42.7
crutch	100.0%	13.0	25.8	31.3	20.4	9.6
cane or walking stick	100.0%	0.7	7.2	23.0	23.5	45.6
walker	100.0%	2.0	4.3	16.3	20.7	56.7
wheelchair	100.0%	9.9	11.9	21.5	22.9	33.8
scooter	100.0%	9.4	17.3	28.3	28.3	17.3
other mobility tech.	100.0%	7.1	11.0	26.0	22.3	33.5
Hearing Devices	100.0%	3.8	6.4	20.5	28.6	40.6
hearing aid	100.0%	3.9	6.0	19.6	29.1	41.3
TDD/TTY	100.0%	12.7	13.3	32.1	13.8	27.5
special alarm	100.0%	9.2	22.3	31.5	6.6	30.2
other hearing tech.	100.0%	4.3	10.0	24.2	25.2	36.4
Vision Devices	100.0%	4.6	25.8	15.0	12.3	42.4
white cane	100.0%	1.8	39.9	15.6	12.9	29.4
other vision tech.	100.0%	5.6	19.2	13.5	14.7	46.3
Speech Devices	100.0%	23.5	5.9	11.8	23.5	32.4
Other Types of Tech.	100.0%	11.7	20.8	25.0	22.2	20.2
adapted typewriter or computer	100.0%	25.0	50.0	16.7	0.0	8.3
adapted automobile	100.0%	9.0	33.6	28.3	24.3	5.2
other tech.	100.0%	12.3	17.2	25.4	22.6	22.6
Home Accessibility Features						
Any Feature	100.0%	19.6	17.9	20.9	18.1	23.5
ramps	100.0%	27.4	21.7	23.1	15.2	12.8
extra-wide doors	100.0%	24.0	20.2	24.8	15.1	15.9
elevator or stairlift	100.0%	16.0	6.9	11.0	23.8	42.2
handrails	100.0%	12.5	12.4	20.2	22.9	32.0
raised toilet	100.0%	9.5	10.1	21.5	20.8	38.1
adapted door locks	100.0%	13.9	7.0	22.0	21.0	36.1
lowered counters	100.0%	21.4	19.3	24.4	9.1	25.7
slick-resistant floors	100.0%	18.9	19.4	37.2	11.8	12.7
other feature	100.0%	19.6	19.6	21.7	18.4	20.7

Source: (Laplante et al. 1992).

Note: A **TDD/TTY** is a typewriter like device the deaf use to communicate over phone lines.

Exhibit IV.C.3

**Percentage Distribution of Source of Payment for Users of Assistive Technology Devices
and Home Accessibility Features: 1990 NHIS-AD**

Source of Payment	Age Group					
	All Ages	24 and Under	25-44	45-64	65-74	75 and Over
Assistive Technology Devices						
All Sources	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Out-of-Pocket	48.2	34.0	37.5	45.5	52.5	56.0
Third Party ^a	34.0	45.0	49.2	37.1	28.7	24.8
Combination of Out-of-Pocket and Third Party	17.9	21.0	13.3	17.4	18.7	19.2
Home Accessibility Features						
All Sources	100.0	100.0	100.0	100.0	100.0	100.0
Out-of-Pocket	77.5	76.1	77.9	74.6	81.6	78.1
Third Party ^a	15.2	17.9	15.4	16.1	11.7	15.0
Combination of Out-of-Pocket and Third Party	7.3	6.0	6.7	9.3	6.8	6.9

Source: (Laplante et al., 1992).

^a Third party payment includes those who did not know the source of payment.

Exhibit IV.C.4

**Percentage Distribution of Payment Sources for Assistive Technology Devices: 1990
NHIS-AD**

Source of Payment	On Medicaid	Not on Medicaid	Total
All Persons			
Medicaid	32.3%	0.7%	4.3%
Other Public	23.4	18.9	19.4
Private Payment	44.3	80.4	78.3
Total	100.0	100.0	100.0
Under Age 65			
Medicaid	37.7	0.8	5.5
Other Public	20.7	13.2	14.1
Private Payment	41.6	86.0	80.1
Total	100.0	100.0	100.0
Over Age 65			
Medicaid	25.9	0.6	3.2
Other Public	26.6	24.0	24.3
Private Payment	47.5	75.4	72.5
Total	100.0	100.0	100.0

Note: Other public sources include Medicare, rehabilitation programs, schools, and the V.A. Private payers included gifts, self or family, and employers.

Source: Tabulations of the 1990 **NHIS** Assistive Devices Supplement prepared for **Lewin-VHI** by **Michelle Adler** of **ASPE**.

Along with data on the source of payment, the **NHIS-AD** also provides information on the unmet needs for AT (Exhibit IV.C.5). ‘Unmet needs’ include those by persons who use AT but indicate the need to use additional AT, and persons who need to use AT who do not use any AT. The percentage of people who indicate a need to use AT with an unmet need is substantial – 19 percent for those under age 18, 22 percent of those age 18 to 64, and 17 percent of those age 65 and over. In addition, depending on age, from 50 to 70 percent of people with unmet needs indicate the inability to afford the device(s) as the reason for their unmet need. It is possible that the NHIS-AD understates the amount of unmet needs, because potential users of AT may be unaware of the particular AT that can assist them with daily activities, including those on-the-job.

Finally, Laplante et al. presented a comparison of the use of selected AT in 1980 and 1990 (Exhibit IV.C.5). The 1980 **NHIS** included a few questions concerning the use of a limited set of AT. From the entries in Exhibit IV.C.5, it is clear that the use of these AT increased dramatically between 1980 and 1990. These increases are still large after adjusting for changes in the age distribution of the population.

Unfortunately, this list of devices does not include technologies workers with disabilities would be most likely to use on the job, such as adapted computers or automobiles, that are included in the 1990 NHIS-AD. It is thus hard to speculate based on

Exhibit IV.C.5

Unmet Needs for Assistive Technology: 1990 NHIS-AD

	Under 18		18 to 64		85 and Over		Total	
	Number	Column Percentage	Number	Column Percentage	Number	Column Percentage	Number	Column Percentage
Has Device but Needs Additional Device(s)	46,632	0.1%	543,416	0.4%	631,651	2.1%	1,221,899	0.5%
Has Device and Does not Need Additional Device(s)	535,046	0.8	5,167,559	3.4	6,197,363	20.6	11,899,968	4.8
Needs but Does not Have Device(s)	67,486	0.1	727,385	0.5	490,961	1.6	1,285,792	0.5
Does not Need Device(s)	63,930,000	99.0	145,130,000	95.6	22,460,000	75.4	231,520,000	94.1
Total with Device(s)	581,878	0.9	5,710,975	3.6	6,829,014	22.9	13,121,867	5.3
Total with or Needing Devices(s)	849,344	1.0	6,438,340	4.2	7,319,975	24.6	14,407,659	5.9
Grand Total	64,579,344	100.0	151,568,340	100.0	29,779,975	100.0	245,927,659	100.0

Source: Tabulations of the 1990 NHIS Assistive Devices Supplement prepared for Lewin-VHI by Michelle Adler of ASPE.

Exhibit IV.C.6

Percentage Change In the Use of Selected Assistive Technology Devices: 1980 to 1990

Assistive Device	Thousands of Users		Percentage Change from 1980 to 1990	Thousands of Users 1990: Age Adjusted	Age Adjusted Percentage Change
	1980	1990			
All Persons	2 17,923	246,099	12.9%	246,099	12.9%
Leg or Foot Brace	472	1,048	121.9	924	95.8
Brace Other than Leg or Foot	1,000	2,740	174.1	2,436	143.8
Artificial Limb	177	218	23.2	189	6.8
Crutch	588	871	14.2	590	0.3
Cane or Walking Stick	2,878	4,400	52.9	3,628	28.0
Walker	888	1,687	94.8	1,363	57.4
Wheelchair	720	1,411	96.1	1,185	84.6

Source: (Laplante et al., 1992).

Note: The 1990 aged adjusted estimates use the 1980 age distribution of the population -- i.e., the percentage of the 1980 population age under 45, 45 to 64, 65 to 74, and 75 and over.

2. Future Research Possibilities

a. Current Public Use Data (1990 NHIS-AD and the Health and Retirement Survey (HRS))

Of these two data sources, the 1990 NHIS-AD has far more potential for studying the use of **AT** by workers with disabilities. The NHIS-AD surveys individuals of all ages, including those of prime working age. By linking the **NHIS-AD** data on the use of AT to the demographic, labor force, and medical and disability data from the **NHIS**, one could pursue future research in a number of areas.

Specifically, using data from the **NHIS** and NHIS-AD, researchers could consider whether the use of AT increases the labor force participation of people with disabilities. While it is not possible to replicate some definitions of disability with **NHIS** data (in particular, the definition now used by the Social Security Administration to determine eligibility for DI and SSI benefits)⁶⁸, researchers in the past have compared labor force participation patterns for people with and without disabilities using the **NHIS** (Yelin and Cisternas, 1994). Thus, one could select a subsample from the 1990 **NHIS** of people of prime-working age with disabilities, and link this sample to the **NHIS-AD**.⁶⁹ Using this subsample, it would then be possible to estimate regression equations predicting whether each person in the subsample participates in the labor force. These equations would control for variables such as age, gender, education, etc., as well as include variables measuring the specific disabilities and medical conditions of different individuals. To these basic equations, one would then add data on the use of AT, including the types of devices used, and whether the individual has any unmet need for AT. Restricting the subsample further to those who are in the labor force, a similar set of equations predicting the number of hours worked could also be estimated.

⁶⁸ The **NHIS** does indicate, however, if a respondent currently receives DI, SSI, or VA benefits.

⁶⁹ The **NHIS** asks survey members: (1) 'Does any impairment or health problem keep you from working at a job or business?' and (2) 'Are you limited in the kind or amount of work you can do because of any impairment or health problem?' For those answering yes to either of these questions, the **NHIS** then queries: (1) "What condition causes this (work limitation)?"; (2) "Besides (condition) is there any other condition that causes this limitation?"; and (3) Which of **these conditions** would you say is the MAIN cause of this limitation?" See (GAO, 1993) for more details.

Using these labor force participation questions, one could pursue the following issues:

- **Is using AT positively correlated with the labor force participation of people with disabilities** -- do people with disabilities who use AT have higher labor force participation rates than non-users? Do workers with disabilities who use AT work longer hours than non-users?
- **Is the use of particular AT more strongly associated with greater labor force participation than others?**
- **Are people with particular types of disability more likely to benefit from using AT than others?**
- **Are people with disabilities who have unmet needs for AT less likely to participate in the labor force or work longer hours than those whose needs for AT are met?**

While we believe further research using the 1990 NHIS-AD and NHIS could help answer these questions, some important limitations remain. First, these data are **cross-sectional**, making it difficult to draw causal conclusions. In particular, the use of AT by people or workers with disabilities might be a proxy for some unmeasured factor influencing labor force participation decisions. For example, users of AT might have more or less severe **disabilities** than non-users, even after controlling for the number and type of disabilities. Second, the NHIS-AD focuses on the use of AT by persons with physical, rather than mental, impairments. This limitation of the scope of the NHIS-AD would necessarily limit the scope of any labor force participation analysis using these data. Third, the 1990 NHIS-AD was not specifically targeted to investigating the use of AT that are most commonly used on-the-job, and thus may miss the use of many devices that enable workers with disabilities to work. Finally, there may be important factors that influence the labor force participation decisions of people with disabilities and the number of hours worked by workers with disabilities that would be omitted from an analysis of the 1990 NHIS-AD and NHIS. For instance, users of AT who also receive personal assistance might find it easier to participate in the labor force or work longer hours. Unfortunately, the NHIS-AD lacks information on the use of personal assistance.

While the 1990 NHIS-AD provides a broad cross-section of people with disabilities of all ages and their use of AT, it may also be worthwhile to pursue research using data sources providing information for people in a narrower age group. For example, the Health and Retirement Survey (HRS) is an excellent source of information on the use of AT and other

features of work accommodations for older workers. The HRS should prove to be another valuable source of data on the use of AT by **workers** with disabilities.

b. **Demonstration Projects**

While further analysis of the 1990 NHIS-AD should provide useful information, the limitations of these data would prevent one from conducting any truly definitive analyses. In particular, the cross-sectional nature of the NHIS-AD makes it difficult to identify causal effects, such as whether the use of AT has changed the employment status of particular individuals with disabilities. In addition, the NHIS-AD does not indicate if a given ATD is used on the job, off the job, or in both settings, making it still harder to link AT use with employment.

In addition to analyzing the 1990 NHIS-AD, there are other approaches that could yield useful information on the success of using AT to promote the employment of workers with disabilities in competitive settings. For example, several studies (GAO, **1993**), (Dean and Dolan, **1990**), analyzed the effect of VR programs on the employment outcomes of their clients. There are other programs, including the Technology-Related Projects of National Significance (**TRPNS**) and the Rehabilitation Engineering Centers (**RECs**) sponsored by **NIDRR** (NARIC, 1993a and **1993b**), that focus more clearly on the use of AT and its ability to improve the employment opportunities of workers with disabilities.

A first step in this research would be to investigate these and similar projects more thoroughly, to identify the most promising candidates for future research. The next step would be to investigate the effects of the most promising programs in improving the employment prospects of workers with disabilities. Careful analyses would also consider how the clients served by these programs are selected, and whether that selection process, as well as other factors, in turn would affect the employment opportunities of these individuals.

Along with investigating current demonstrations, the Department of Health and Human Services (DHHS), perhaps in conjunction with the Social Security Administration (SSA), might consider funding a new demonstration project. Medicare now only funds AT that is used to **help** treat acute medical conditions in the home (e.g., home medical equipment). A demonstration could be conducted to determine if broadening the AT Medicare covers for **DI** beneficiaries would improve the employment opportunities of these individuals. This

demonstration in turn could be part of a larger work incentive demonstration project investigating the employment and other outcomes of AT users whose AT is funded by the Medicare or Medicaid programs.

D. Conclusions

Based on our examination of available information about the use of assistive technology devices (AT) by workers with disabilities we reach the following conclusions:

- The financing of AT for workers with disabilities is fragmented;
- There is no “typical” AT user on-the-job;
- It is important to select appropriate AT as part of successful job accommodations, and accommodations should include training in the use of these AT and related services;
- There are many unmet needs and other barriers limiting the use of AT by workers with disabilities; and
- The 1990 National Health Interview Survey on Assistive Devices (NHIS-AD) is a potentially rich and little utilized source of data on the use of AT by workers with disabilities.

Our findings suggest a number of possible future areas for research, including:

- Rationalizing and streamlining the public and private financing of AT;
- Investigating the relationship between using AT and the labor force participation of people with disabilities;
- Modifying current policies to reduce unmet needs and other barriers limiting the use of AT by workers with disabilities; and
- Evaluating current demonstration projects and other programs promoting the use of AT.

CHAPTER FIVE
**THE IMPACT OF WELFARE REFORM STRATEGIES ON PERSONS WITH
DISABILITIES**

A. Introduction

1. Background and Overview

The Aid to Families with Dependent Children (AFDC) program is a means-tested income support program that provides cash benefits to needy children deprived of parental support because a parent is absent from the home, incapacitated, deceased, or unemployed. Support 'may also be provided to others in the household, and is usually provided for the caretaker of such children.' AFDC recipients are automatically eligible for Medicaid insurance coverage. Each state determines the eligibility requirements (within federal guidelines) and benefit levels. The program is financed through a combination of state and federal funds, with federal funds covering from **50** to 80 percent of benefit costs and 50 percent of the administrative costs associated with the program (Committee on Ways and Means, 1994).

The AFDC program has been the target of many proposed welfare reform strategies designed to promote labor force participation of recipients and decrease AFDC caseloads. In 1988, the passage of the Family Support Act introduced many of these reforms. The Act established the Job Opportunity and Basic Skills (JOBS) program which is to provide education, training, and job placement for AFDC recipients, it defined target groups who were to be given priority in participating in the JOBS program, and set quotas for participation. The Family Support Act also established "transitional Medicaid benefits" -- Medicaid coverage may be extended for twelve months to families who leave the AFDC rolls. due to increased earnings.

⁷⁰ AFDC benefits are available to qualified two-parent families in which one parent is unemployed under the AFDC-Unemployed Parent (AFDC-UP) program. The 1988 Family Support Act requires all states to provide AFDC benefits to two-parent families who are needy due to unemployment of the principal wage earner, effective in 1990. Prior to the passage of the Family Support Act, the **AFDC-UP** program was optional.

Welfare reform strategies are again being debated and proposed at both the federal and state levels. President Clinton's proposed Work and Responsibility Act limits the receipt of AFDC to two years for most recipients, increases the percentage of recipients who must participate in the JOBS program, and restructures benefits to increase work incentives. Many states are currently conducting welfare demonstrations that incorporate one or more of **these** proposed reforms. Proposals that would presumably make it easier for states to implement **reforms** without federal approval are also being debated in Congress.

In this chapter, we investigate the impact of welfare reform strategies designed to encourage labor force participation on AFDC recipients with disabilities and recipients with disabled children. This is an important issue given the finding that approximately one in five women **aged** 15 to 45 on AFDC **have** some type of impairment, and approximately one in eight have a child with a disability (Adler, 1993). The primary questions we address include:

- What is the prevalence and nature of child and adult disability in the AFDC program?
- What are the characteristics of AFDC recipients with disabilities?
- What empirical evidence exists concerning the effect of work **incentives** and training programs on AFDC recipients with health impairments and recipients with disabled children?
- If exempted from time limits and work requirements, how are recipients with disabilities screened?
- Are there special provisions for disabled recipients and recipients with disabled children who participate in work and training programs?
- Are those with disabilities referred to other resources in the community?

We take a two-part approach to **investigate these issues**. First, we review the literature for studies of **the** impact of reform strategies on **the** labor **force** participation of AFDC recipients, studies that examine the prevalence of disability in the AFDC population, and studies that analyze the relationship between work incentives, health status, and labor force participation of APDC recipients. Our findings from this review are presented in Section A. For the second part of this study **we** interviewed AFDC administrators in eight states to obtain

information on how the particular reforms currently implemented in each state impact AFDC recipients with disabilities. The results of these interviews are discussed in Section **B**.

2. Summary of the Findings

The key findings of this review include:

Findings General of AFDC Studies

- The findings from studies of the labor supply effects and work incentives associated with the AFDC program indicate: the program does have a significant negative impact on the labor supply of recipients (a reduction in hours worked from 10 to 50 percent); benefit levels negatively affect the probability of exiting AFDC; and changes in the benefit reduction rate for additional earnings do not have any net impact on the labor supply of female household heads -- the increased work effort of existing recipients is offset by the decreased effort of new recipients drawn to the rolls by the change in the benefit reduction rate.
- Studies of the duration of time spent on AFDC estimate that about 75 percent of new recipients would be affected by a two-year time limit on benefit receipt; that is, they would remain on AFDC for more than two years in the absence of an imposed limit. Those most likely to exit AFDC are those with higher wages, more education, and those with fewer children.
- Studies of the impact of training programs on the earnings of AFDC recipients show that such programs have a positive effect on earnings and that the costs associated with these programs are offset by reduced AFDC payments after two to five years. These studies also show, however, that the earnings gains do not typically lift families out of poverty and that training programs are least successful in raising the earnings of long-term AFDC recipients.

Findings with Respect to Recipients with Disabilities

- Studies of the prevalence of disability in the adult AFDC population show that 11 percent have a disability that is work limiting, and 19 percent have a functional impairment. The prevalence of disability among female AFDC recipients is about twice that of women in the general population.
- The findings of a study of the impact of reform strategies on AFDC recipients with health impairments indicate that the labor force participation of recipients with impairments is much less sensitive to changes in benefit levels and wage subsidies than that of healthy AFDC recipients. This study also showed that the provision of health insurance independent of AFDC participation would have a substantial positive impact on the labor force participation of both healthy and impaired recipients.

- A few studies have shown that recipients with disabilities do remain on the AFDC rolls longer than recipients without disabilities; however, the statistical significance of these findings has not been adequately demonstrated.
- A study that examines the likelihood of AFDC recipients with disabilities to work, to leave the rolls, and to leave the rolls with earnings found that those with disabilities are not significantly less likely to leave the rolls, but are significantly less likely to leave the rolls with earnings. This study also estimates that 30 to 40 percent of 'recipients with functional limitations do work at some time during the first year on AFDC.
- Several studies demonstrate that recipients with disabilities may encounter difficulties participating in work or training programs. A recent survey of JOBS enrollees conducted at seven sites found that nearly one in five enrollees believed they were unable to engage in education or training activities because of a health or emotional problem.

Findings with Respect to AFDC Children with Disabilities

- The prevalence of disability among children in families on AFDC is 5.4 percent compared to 3.7 percent in the general population. Other studies have shown that 7.5 percent of AFDC families have a child with a disability and that female recipients with disabilities are about twice as likely to have disabled children as female recipients without disabilities (22.6 percent versus 10.4 percent).
- The evidence of the effect of a disabled child on maternal labor supply, and labor supply of AFDC mothers in particular, is mixed. Studies including all mothers or all single mothers have generally found a negative impact of a child's disability on maternal labor supply. Others have either found no impact or, in a few cases, a positive effect on maternal labor supply.

Findings from the State Welfare Agency Interviews

- Disability is a factor in determining eligibility for AFDC benefits (usually in the case of a two parent family) and in determining exemption from JOBS participation. Correspondingly, programs in most of the selected states have two sets of criteria to determine disability: one set for determining AFDC eligibility, and another, more strict set, for determining JOBS exemption. The JOBS programs has offered a setting for a more comprehensive assessment of persons with disabilities.
- Of the JOBS programs in these states, most do not have specific provisions or procedures that directly relate to participants with disabilities; however, most do provide individualized services for all participants, allowing those participants with disabilities to have any special needs addressed. It is extremely rare, though, for an individual with disabilities who is exempt from JOBS to participate voluntarily.
- The AFDC programs in these states refer individuals with disabilities primarily to SSI and Vocational Rehabilitation. Some programs also make referrals to alcohol and drug treatment centers, mental health providers, and Veterans' Affairs. Some programs

require recipients to apply for other benefits (e.g. SSI, Unemployment insurance) in order to receive AFDC benefits.

- These AFDC programs identify children with disabilities only when it is an issue for exemption from JOBS. Most of the programs do not automatically exempt recipients from JOBS if their child has disabilities and is on SSI. Recipients must show that they must care for the child full-time in order to be exempt;
- Utah's Single Parent Employment Demonstration (SPED) is unique in that it does not allow any exemptions to the program. SPED requires all recipients to participate in some type of income-increasing activity, ranging from employment to applying for SSI benefits. SPED also allows a one-time crisis need payment in order to help the recipient get over the crisis and prevent them from becoming an AFDC recipient.

3. Issues for **Future Research**

This exploratory study of the impact of welfare reform on AFDC recipients with disabilities and recipients with disabled children has identified several gaps in the state of knowledge concerning these issues:

- There is little information on the specific types of disabilities or the severity of disability prevalent in the AFDC population. Existing studies enumerate persons with work disabilities or those with functional impairments. While useful, these studies give no indication of the extent to which such impairments are permanent or may be ameliorated with medical or rehabilitative services, assistive devices or personal assistance services. Also, the prevalence of "hidden" conditions, such as learning disabilities and depression, may be underestimated in surveys that focus on physical limitations.
- There is little information on the extent to which recipients with impairments are able to work. One study measured disability as the self-reported inability to work due to a health condition; however, as discussed above, we do not know what proportion of these individuals may have conditions that may be treated or otherwise accommodated to promote employment. Learning disabilities among AFDC recipients are likely to be an important barrier to work, yet are not likely to be acknowledged in studies using "inability to work due to a health condition" as the criteria for measuring disability.
- Research shows an extremely high rate of work disability among older **AFDC mothers**. Whether this is due to long-term dependence on AFDC of a core group of women with health problems or to other factors is not known, as the issue has not been previously studied. Longitudinal analysis of the dynamics of disability, work, and AFDC participation is necessary.
- While a substantial number of AFDC recipients report health limitations, only a fraction of these individuals have applied for or receive federal disability benefits. It is likely that many of these individuals have conditions not severe enough to preclude them from work and yet severe enough to **be** a barrier to labor force participation. More research

on the nature of **recipient's** disabilities, and how work and training programs may address them, is needed.

- We found only one study that looked explicitly at the labor force responsiveness of recipients with disabilities to changes in the AFDC benefit structure. This study, which employed 1964 **SIPP** data, could be updated with 1990 **SIPP** data. In general, the 1990 **SIPP** data have not been fully utilized with regard to research on welfare recipients with disabilities. Additional analyses of the effects of various changes in the AFDC program should be encouraged.
- We found no information on the effectiveness **of training** programs for AFDC recipients with disabilities. The finding of one study, that one in five JOBS enrollees believe they are unable to participate in education and training activities because of health or emotional problems, suggests that many persons with impairments are not exempt from the JOBS program. We found no information in the literature on whether or not health status as a barrier to education or employment is addressed in such programs, or on the cost-effectiveness of such programs with respect to participants with physical or mental impairments.
- Evaluations of reform strategies, such as time limits and training programs, need to consider the impact of these strategies on recipients with disabilities. Studies of the employment outcomes of persons with disabilities participating in JOBS programs that do not exempt individuals with disabilities should be encouraged.
- Studies of the duration of welfare receipt are not conclusive regarding the relationship between health status and time spent on the AFDC rolls. One study found that those with impairments are significantly less likely to exit AFDC with earnings; however, many studies found no statistically significant difference in overall exit rates between recipients with and without disabilities. Other than the study examining the likelihood of exiting with earnings, we found no information on the reasons why recipients leave the AFDC rolls and the extent to which these reasons may differ between recipients with and without impairments. It may be that the likelihood of exiting AFDC does not differ significantly between disabled and non-disabled recipients simply because those with disabilities eventually transfer to other programs, such as DI or SSI. Further understanding of the dynamics of welfare receipt among those with disabilities would be useful in evaluating the impact of proposed reform strategies on these individuals.
- Related to the above issue, there is little information on the interactions between AFDC and other programs, such as SSI, Medicaid, General Assistance, and Food Stamps. The interactions of these programs create complicated, and perhaps intensified, work disincentives for recipients with disabilities. A better understanding of the degree to which other public programs are utilized by AFDC recipients, and the work disincentives associated with these programs collectively, may be useful in formulating effective work incentive policies for both disabled and non-disabled AFDC recipients.
- There is very little existing research on AFDC families with disabled children. Issues such as the impact on the mother's labor supply and the availability of and need for child care and other services for these children have not been well studied.

B. Literature Review

In this section, we review the relevant literature on disability, AFDC program participation, and welfare reform strategies. The review is organized as follows: We first present available information on the extent of disability and characteristics of persons with disabilities in the AFDC population. Next, we discuss welfare reform strategies designed to increase the labor force participation of AFDC recipients. After a brief discussion of these strategies and the theoretical and empirical evidence of their effectiveness, we review studies that provide direct or indirect evidence of the effects of reform strategies on AFDC recipients with disabilities. **We** then present a review of studies that provide information on the prevalence of disability among AFDC children, the characteristics of these children, and the impact of welfare reform strategies on AFDC mothers with disabled children. finally, we discuss the potential interaction between the AFDC and SSI programs for welfare recipients with disabilities.

1. Disability in the Adult AFDC Population

A few recent studies have examined the characteristics of persons with disabilities who also receive AFDC benefits. Most of these studies are based on two major national **surveys** that collect data on individuals' economic and health status that are useful for this kind of research: the Current Population Survey (CPS) and the Survey of Income and Program Participation (**SIPP**).⁷¹ Both surveys contain data that are of value to researchers in examining these populations, but neither is considered comprehensive. The **SIPP** includes specific questions regarding individuals' physical and mental limitations, but contains small sample sizes in certain subgroups of the population; the CPS includes more observations than the **SIPP** but does not inquire about disability with the same specificity. Furthermore, different studies of these issues use different definitions of disability, which complicates comparisons across studies. In **the following** discussion, we take care @describe the definitions of disability used by different studies.

⁷¹ **The** CPS collects information on work disability annually. **The SIPP** includes information on disability in topical modules collected in 1984 and 1990.

The studies described in this literature review provide generally consistent information on the distribution of disability among AFDC recipients, but do not provide information about many important aspects of recipient disabilities. We have not found research on the specific causes of disability among AFDC recipients, information on the severity of impairments, or any indication of the variation in prevalence across states. This is in part due to the small number of individuals in subgroups when available survey data on AFDC participants with disabilities is further disaggregated by, say, disability status or state.

Examining data from the March 1989 CPS, Wolfe and Hill (1993) find that, for mothers aged 18 to 60, the prevalence of disability is higher among AFDC recipients than non-AFDC recipients and is generally higher for single mothers than for married mothers. Here, disability is measured as a self-reported disability or health problem that limits work (Exhibit II.B.1). For all population groups the prevalence of disability increases with age, but this increase is particularly substantial for AFDC recipients. The percentage of 18 to 24 year old mothers reporting disabilities is four percent for both AFDC and non-AFDC recipients, but is 41 percent for 45 to 60 year old AFDC recipients while only nine percent for single mother non-AFDC recipients in the same age group.

Exhibit V.B.1

Percent of Women with Self-reported Disability or Health Problem that Limits Work, by Age, Marital Status, and AFDC Recipiency

	18-24	25-34	35-44	45-60	Total
Married Mothers	2%	2%	3%	6%	3%
Single Mothers	4%	5%	8%	15%	7%
AFDC Recipient	4%	8%	20%	41%	11%
Non-AFDC Recipient	4%	3%	5%	9%	5%

Source: Wolfe and Hill (1993), based on data from the Current Population Survey, March 1989.

Further analysis of these data support the finds that among all women aged 18 to 60, older women, women with less schooling, single mothers, other unmarried women, and women in lower-income households are most likely to report greater health problems (Wolfe and Hill, 1993).

Applying the same definition of disability (self-reported work limitation due to a health condition) to data from the 1984 Survey of Income and Program Participation, Wolfe and Hill find that, among single mothers, AFDC recipients and older women are more likely to report disability (Exhibit II.B.2). Whereas 11 percent of all single mother AFDC recipients reported a disability in the 1989 CPS data, 13 percent did in the 1984 SIPP data. Tabulations from the 1984 SIPP also demonstrate that disability rates are inversely related to educational attainment, although this relationship appears to be much weaker for AFDC recipients than for non-AFDC recipients. The percent of single mother non-AFDC recipients reporting a disability is substantially lower for those who completed high school than for those who did not. The percent of single mother AFDC recipients reporting a disability is lower for those who completed high school, but not substantially. In all educational categories, the percentage of women reporting a disability is greater for AFDC recipients than for non-AFDC recipients.

Exhibit V.B.2

Percent of Women Reporting Disability or Health Problem that Limits Work, by Age and Education

	Single Mother AFDC Recipient	Single Mother Non-AFDC Recipient
Age		
18-24	5%	1%
25-34	10%	4%
35-44	25%	6%
45-60	50%	19%
All Ages	13%	6%
Education		
Did not complete high school	14%	13%
Completed high school	13%	5%
More than high school	11%	4%

Source: Wolfe and Hill (1993), based on data from the 1984 Survey of Income and Program Participation.

Estimates using the 1984 and 1990 **SIPP** data on women ages 15 to 45 resulted in significantly greater estimates of disability in the AFDC population when functional limitation rather than work limitation is used as the definition of disability. According to the 1984 and 1990 SIPP, respectively, Adler reports that 22.3 percent and 19.0 percent of women 15 to 45 on AFDC had a disability, compared to 9.8 percent of all women in this age range (using 1990 data). The prevalence of disability among AFDC recipients suggested by these results is substantially greater than those reported by Wolfe and Hill because of the less restrictive definition of disability used in the tabulation. Adler measured disability based on functional limitation, including in the definition of disabled adults those who reported sensory difficulties or difficulty performing activities due to a mental or physical impairment.

Adler's results also suggest that relative to AFDC recipients without disabilities, a greater percentage of AFDC recipients with disabilities did not finish high school, are work limited, live in poverty, stay on AFDC longer, and receive food stamps. The percentage of AFDC recipients with work experience is, however, nearly equal for those with and without disabilities (Exhibit **II.B.3**).

Exhibit V.B.3

Characteristics of Women Ages 15 to 45 on AFDC

	With Disabilities	Without Disabilities	Overall
Number	465,672	1,977,915	2,443,587
Percent	19.0%	81.2%	100.0%
Median Age (years)	32.6	29.0	29.8
Education			
Did not finish High School	57.6%	43.7%	46.3%
Employment			
Never Employed	24.0%	24.5%	24.4%
Work Limited	59.8%	6.7%	16.2%
Economic Status			
In Poverty	87.0%	77.0%	78.9%
On AFDC at least 10 years	27.8%	19.4%	21.0%
On Food Stamps	87.3%	83.9%	84.6%

Source: Adler (1993), based on analysis of data from the 1990 Survey of Income and Program Participation

Using a definition based on activities of daily living (**ADLs**) and instrumental activities of daily living (**IADLs**) similar to Adler's, Acs and **Loprest** report similar results based on the 1990 **SIPP** (Acs and **Loprest**, 1994). They find that among adult female AFDC recipients, 18.3 percent report some limitation in the activities considered, 7.9 percent of whom report that they need help or are unable to perform one of these activities.

A third study, using data from the 1984 SIPP, reports the prevalence of disability by functional limitation (**Mathematica** Policy Research, 1990). This study found slightly lower total disability prevalence than the rates reported by Adler for 1984, but considered both male and female AFDC recipients. For men and women age 18 to 84, this study reports that 18.7 percent of working-age AFDC recipients have substantial functional limitations. This study also provides detail on the distribution of disability by level of functional limitation and by level of work limitation (Exhibit II.B.4).

Exhibit V.B.4

**Prevalence of Limitations in Functioning and in Work among
AFDC Recipients Ages 18 to 84**

Distribution by Level of Limitations in Functioning	Percent
Needs assistance with ADLs	1.4%
Needs assistance with IADLs	3.5%
Inability in one or more functions	4.5%
Difficulty in two or more functions	7.3%
Subtotal: Substantial Functional Limitation	16.7%
Difficulty in only one function	9.3%
No limitations in functioning	74.0%
Distribution by Level of Work Limitation	Percent
Prevented from working	13.7%
Unable to work full time or regularly	3.9%
Otherwise limited in kind or amount of work	5.8%
Not limited	76.6%

Source: Mathematics Policy Research (1990), based on data from the 1984 Survey of Income and Program Participation.

A recent study of substance abuse among AFDC recipients provides information on the extent of this type of impairment in the welfare population, using data from the 1991 and 1992 National Household Surveys on Drug Abuse (NHSDA) (Office of the Assistant Secretary for

Planning and Evaluation, 1994). The authors estimate that 5.9 percent of AFDC recipients between the ages of 18 and 44 have “significant impairment” due to substance abuse and 11.2 percent have “some impairment”. In this study, impairment definitions are based on **self-**reported dependence on and usage frequency of alcohol and illicit **drugs**.⁷² The prevalence of impairment due to substance abuse was found to be somewhat higher among AFDC recipients than among non-recipients (2.9 percent of non-recipients had significant impairment and 9.0 percent had some impairment).

2. Welfare Reform Strategies and Work Incentives

In this section, we discuss several welfare ‘reform’ policies that have been enacted federally, are included in proposed federal legislation, or are currently under experimentation in specific states. We focus on policies designed to increase the labor force participation and/or the earnings potential of welfare recipients. The *a priori* incentives associated with such policies, the empirical findings regarding these incentives, and the effectiveness of specific reform policies are briefly discussed.

Strategies designed to reduce caseloads, encourage labor force participation, or facilitate the formation of human capital among welfare recipients typically take two forms: those that modify the welfare benefit structure in order to increase work incentives or make welfare less attractive; and those that stipulate either voluntary or mandatory work, education, training, and job search activities. The discussion that follows focuses on these two broad categories of reform policies. We conclude this section with a brief description of other reform strategies not necessarily designed to improve labor force participation.

⁷² “Significant impairment” is defined as: 1) dependence on an illicit drug other than marijuana, and either the use of an illicit drug at least monthly or use of heroin at least once in the past year; or 2) dependence on alcohol and intoxicated weekly or more often. Some impairment” is defined as when at least one of the following are present: 1) not dependent on alcohol or any illicit drug and either used an illicit drug weekly or more often or was drunk weekly or more often; 2) dependent on an illicit drug other than marijuana and did not use an illicit drug other than marijuana monthly or more often and did not use heroine; 3) dependent on alcohol but was drunk **less** than weekly; 4) dependent on marijuana and not meeting the criteria for significant impairment.

a. Changing the AFDC Benefit Structure

The AFDC benefit structure may be modified in a number of ways in order to increase work incentives. Such modifications **may** involve an across the board reduction in the level of benefits, an increase in the earned income disregard, or limiting the amount of time an individual may receive benefits. **We** discuss each of these benefit reform strategies including the empirical findings regarding the effects of such strategies on the labor supply of AFDC recipients.

Reduction in Benefit Levels: Real average AFDC benefit levels have been steadily declining for the past two decades. In 1970, the monthly AFDC benefit per family was \$676 (1993 dollars) compared to \$373 in 1993, representing a 45 percent reduction in real average benefits (Committee on Ways and Means, 1994). Some of this decline has been offset by the benefits available under the Food Stamp and Medicaid programs; however, the sum of real benefits across all three programs has still shown a decline since 1975 (Moffit, 1992). All else equal, a reduction in the level of benefits would be expected to decrease the attractiveness of AFDC, increase work incentives, and decrease the AFDC caseload. Although state legislatures have been passively reducing AFDC benefit levels by not making cost-of-living adjustments, reduction of the benefit level has not typically been a reform strategy adopted in federal or state reform efforts.

The labor supply effects of the AFDC program have been examined in numerous studies. These studies have typically relied on cross-state variation in AFDC benefits to estimate the magnitude of the work incentives associated with the program. The general finding is that the program does have a significant negative impact on labor supply, although the estimates of this effect vary greatly from study to study (Dantiger et al., 1981). Other studies have examined how exit rates from the AFDC program are affected by benefit levels. These studies show a significant -negative relationship between benefit levels and the probability of leaving **AFDC**.⁷³ Given these findings, it seems likely that an overall reduction in the level of benefits would decrease AFDC participation rates and increase labor supply, both because of increased work incentives and because fewer individuals would qualify at the lower

⁷³ **Moffit** (1992) provides an extensive review of studies that examine the incentive effects of the AFDC program.

benefit levels. Even though certain goals of welfare reform may be achieved by reducing benefit levels (i.e. reduction of caseloads and work disincentives), such a measure may be inconsistent with other goals of the welfare system --i.e. the redistribution of income and reduction of hardship and poverty.

Increasing the Earned Income Disregard: As the earnings of AFDC recipients increase, there is a reduction in the amount of benefits for which they qualify. Under current law, working recipients are allowed a \$90 work expense disregard, another \$30 unspecified disregard, and a disregard for one-third of remaining earnings. These provisions only apply for the first four months of earnings. After four months, the one-third disregard ends, and after 12 months, the unspecified \$30 disregard ends.

The reduction in AFDC benefits that results from each additional dollar of earnings may be thought of as a marginal tax on earnings. Under current law, each additional dollar of earnings above the fixed dollar disregards leads to a 67 cent reduction in AFDC benefits. This is sometimes referred to as the 'benefit reduction rate.' The extent to which a recipient is "taxed" on each dollar of additional earnings will affect the recipient's decisions regarding whether or not to engage in market labor and how many hours of labor to supply--the greater the benefit reduction rate, the greater the work **disincentive**.⁷⁴

While the theoretical relationship between the benefit reduction rate and work incentives is unambiguous, the net effect of changes in the benefit reduction rate on labor supply is less clear. To the extent that a decrease in the benefit reduction rate induces recipients to work, labor supply will increase. Reducing the benefit reduction rate, however, will also have the effect of increasing the number of individuals potentially eligible for AFDC benefits by increasing the income cutoff. This will draw new individuals onto the rolls, and their **labor** supply will fall. The net effect of reducing the benefit reduction rate on labor supply will

⁷⁴ The 'marginal tax rate' on earnings for an AFDC recipient will actually be greater than the benefit reduction rate because of the loss of benefits from other programs in which **AFDC** recipients typically participate. For example, under the Food Stamp program, benefits are reduced by 3.30 for each additional \$1 of income. Hence, the net increase in income (including Food Stamp **benefits**) for an AFDC recipient who earns an additional dollar of income is only about 23 cents during the four month period when the AFDC one-third income disregard applies.

be positive only if the increased work effort of those initially on the rolls exceeds the reduction in the work effort of new **recipients**.⁷⁵

Evidence from empirical studies suggests that lowering the benefit reduction rate has little net impact on the labor supply of female heads of households (Moffit, 1988). The decrease in labor supply of new recipients cancels out the increase in labor supply among existing recipients, resulting in no significant effect of changing the benefit reduction rate on labor supply in either direction. The econometric findings are consistent with time-series evidence that changes in the benefit reduction rate will have no impact on labor supply. In 1967, federal legislation reduced the AFDC benefit reduction rate from 100 percent to 67 percent, and in **1981, it** was increased back to **100** percent. Neither change had a major influence on the work effort of female heads of households. Since the **1960s**, the percentage of female heads of households working has remained relatively stable at a rate of between 50 and 55 percent, and the average hours of work has been steady at approximately 20 hours per week (Moffit, 1992).

Limiting Time on Welfare: A reform strategy that has gained recent popularity is that of imposing a limit on the amount of time a family may receive AFDC benefits. Such a strategy would have a similar hypothesized impact on work incentives and caseloads as a general reduction in benefits because, after some specified time **period**, benefits are essentially reduced to zero. Work incentives would be expected to increase and caseloads would be expected to fall.

The time limit strategies are sometimes intended to be combined with efforts to increase the employability of recipients. During the time an individual is receiving AFDC, she is required to participate in education, training, and job search activities specified by the program. Certain recipients are exempt or deferred from such requirements and therefore may not be subject to the time limit. Under prior proposals, such **as** that by the Clinton Administration, those exempt from training requirements are recipients with very young children and recipients incapacitated by a health condition.

⁷⁵ The "caseload-increasing effect" could be minimized by lowering the maximum benefit level. As discussed previously, **active** reductions in benefit levels has not been done by states.

We are aware of no studies that examine the impact of time limits on the work effort or labor market success of AFDC recipients. This is due to the fact that such policies have not been implemented in the past. A number of studies, however, have examined the duration of AFDC benefit receipt and the determinants of exiting from AFDC. These studies provide information about the number and characteristics of individuals who are most likely to be affected by welfare time limit policies. One such study used data from the Panel Survey of income Dynamics (PSID) from 1966 to 1962 to estimate the percentage distribution of AFDC spell durations and total time spent on AFDC (Ellwood, 1986). The results indicate that about half of new AFDC spells are shorter than two years in length. The estimates also show that about 10 percent will last for ten or more years. A somewhat different picture emerges, however, when repeat spells and total time on welfare are considered. The findings indicate that just 25 percent of recipients receive benefits for less than two years in a twenty-five year time period, while about 25 percent will be on the rolls for ten or more years.

The implication of these findings is that a significant proportion of AFDC recipients will be affected by a time limit on benefit receipt. Studies that have examined the determinants of AFDC exits provide clues as to the characteristics of those least and most likely to be affected. Women most likely to exit from AFDC are those with higher wage rates, higher educational attainment, and fewer children. Black women and women who have never been married are among those less likely to exit AFDC. It should be noted that "exiting" AFDC does not necessarily mean leaving welfare due to higher earnings. Families may become ineligible for benefits due to changes in living arrangements (marriage or becoming part of another **household**). Indeed, Eliwood's analysis of **PSID** data estimated that only about 20 percent of exits from AFDC are a result of an increase in earnings (Ellwood, 1986). Another study using a larger period of monthly data, however, found work to be the most common reason for leaving the welfare rolls. Using data from the National Longitudinal Survey of Youth (NLSY), Pavetti (1993) found that 45 percent of all exits from welfare were due to work. Pavetti also found that, over a five-year interval, about 30 percent of recipients will leave welfare for a spell of work that lasts for at least two years.

The effectiveness of policies that impose a time limit on benefit receipt may to a large degree be dependent on the effectiveness of the work/training component that must go hand in hand with such policies, especially with respect to long-term welfare recipients who may lack

the human capital necessary to succeed in the labor market. The success of those who leave welfare for work has not been particularly great. Over half of those who leave welfare for jobs lose their jobs within two years and return to welfare (Pavetti, 1995). **The** effectiveness of work/training requirements intended to increase the earnings and employment of welfare recipients is the topic of the following section.

b. Work, Education, and Training

Since the **1970s**, there has been increasing emphasis on the use of work requirements and training programs to achieve the goals of welfare reform: to reduce caseloads and increase the self-sufficiency of welfare recipients. What is henceforth referred to as “training programs” may take a variety of shapes and forms. Some programs may simply require recipients to **work** a specified number of hours per week, in community service work if other work is not available, or be subject to total or partial loss of benefits. Other programs may be voluntary or mandatory and provide a broader range of services to participants, such as education, on the job training, and job search assistance.

The 1988 Family Support Act, with its establishment of the Job Opportunities and Basic Skills (JOBS) Program, was a major step in the direction of using training programs and work requirements to reform welfare, endorsing the view that welfare recipients should be required to do something in return for the benefits they receive. The legislation requires that, to the extent that resources are available, all non-exempt AFDC applicants and recipients participate in the education, training, and employment activities provided by the JOBS program. Non-compliance may result in a reduction of the AFDC benefit. Exempt applicants and recipients, including those who' are incapacitated by a health condition, those caring for an ill or incapacitated family member, and those with children under the age of 3, may participate on a voluntary basis.

All states were required to have a JOBS program in place by 1990, and as part of the program, must provide participants with educational activities, job skills training, job readiness activities, and job **placement assistance**; states, however, are given flexibility in designing their programs. The federal legislation set participation standards for states that, if unmet, result in a reduction in the federal matching funds for the program. in 1994, at least 15 percent of the

nonexempt AFDC caseload in each state must participate in the JOBS program; in 1995, 20 percent must participate (Committee on Ways and Means, 1994).

In theory, the effect of a pure "workfare" requirement (requiring recipients to work a specified number of hours or become ineligible for benefits) would be to increase labor supply and decrease the **caseload**. Those working less than the required number of hours before implementation of **the workfare** requirement must increase hours of work to remain eligible for benefits. Those who do not wish to increase hours of work will leave the rolls and, hence, reduce the **caseload**.

The theoretical effect of programs that require a broader range of activities -- such as education, training, or job search -- on caseload and labor supply is less clear. A program that increases the future earnings of AFDC recipients will reduce the likelihood that they will return to the rolls in the future and hence, reduce the future caseload. On the other hand, if the services offered by the training program have a positive net present value to participants, then the training program may make AFDC participation more attractive and therefore draw new individuals to the rolls or make recipients less likely to leave the rolls.

Empirical studies of AFDC training programs have focused on evaluating whether or not the programs have any effect on the earnings of participants, rather than on the long-run caseload effects. The general finding from **these** studies is that there is a positive impact on earnings; however, the magnitude of the impact varies greatly from study to study (Moffit, 1992).

A recent summary of the results from the evaluations of 13 training programs implemented in the late 1970s and early 1980s provides information on the effectiveness of a wide variety of training programs (Gueron and Pauly, 1991). The general findings from these evaluations were that nearly all programs **led** to earnings gains, ranging from about 10 to 30 percent over a control group; the earnings gains were sustained for at least three years; and, in general, the costs associated with the training program were offset by reduced AFDC payments after two to five years. The earnings gains, however, did not typically lift families out of poverty and the AFDC **caseload** reductions were not substantial. These studies also found that among first-time AFDC recipients, those with recent work experience benefited least from training programs, while those without a recent work history showed the greatest gains. The

programs evaluated were least successful in raising the earnings of long-term AFDC recipients.⁶⁶

c. Other Strategies

A variety of other strategies designed to reduce AFDC caseload have been proposed or implemented. One that is particularly relevant to recipients with disabilities is a policy where those with health problems are required to receive treatment for that problem, or lose their eligibility for benefits. This policy has generally been aimed at persons disabled because of substance abuse, however, it may be applicable to any health limiting condition. The effectiveness of such a strategy is, to date, undetermined.

Other strategies, not necessarily aimed at improving labor force participation, include the denial of cash benefits for children born after the family has been on welfare, denying or reducing benefits if minor children are not in school, and aggressively seeking child support payment from absent fathers on behalf of welfare families.

3 . The Impact of Reform Strategies on Persons with Disabilities

In this section, we review studies that have examined the impact of the strategies described above on AFDC recipients with disabilities. Since the focus of many of these studies has not been on persons with disabilities, we also include studies that have considered, more generally, the impact of reform policies on recipients in poor health.

The question of whether or not the reform strategies discussed above will have a significant effect on the labor supply of AFDC recipients with disabilities has been addressed by only one very recent study (Wolfe and Hill, 1995). In this study, the authors use data from the 1984 **SIPP** to estimate a model of the likelihood of employment of single mothers as a function of health **status**,⁷⁷ the value of Medicaid **benefits**,⁷⁸ the expected value of private

⁷⁶ For further reading on the effectiveness of training programs see **Manski** and Garfinkel (1992) and U.S. Department of Labor (1995).

⁷⁷ Health status is measured with two variables: an Indicator of self-reported poor or fair health, and the number of activities of daily living (**ADLs**) between 0 and 8 that the mother has difficulty performing.

⁷⁸ The measure used is the expected annual value of Medicaid benefits to the family as computed by the methodology described in Moffit and Wolfe (1992).

health **insurance**,⁷⁹ whether or not a child in the family has a disability, health adjusted predicted wages if working, the potential level of AFDC benefits in the family's state of resident, and demographic and human capital variables typically included in labor force participation equations.

The authors use the estimated parameters of the model to simulate policy changes⁴ designed to affect the labor force participation of single mothers. These include a wage subsidy, a decrease in AFDC benefits, and the provision of health insurance independent of AFDC participation. Among their results were the findings that decreasing AFDC benefits by 50 percent would increase employment among health compromised AFDC recipients by 8.2 percentage points compared to an increase of 14.3 percentage points among healthy recipients.⁸⁰ With respect to the impact of a 50 percent wage subsidy,⁸¹ the labor force participation of health compromised AFDC recipients would increase by 19.3 percentage points compared to a 32.1 percentage point increase among healthy recipients.

Thus, the results of the Wolfe and Hill (1995) study suggest that the employment of AFDC recipients with health problems is less responsive than non-disabled recipients to reform strategies that create work incentives by changing AFDC benefits or increasing wage earnings. The results from this study also indicate that the provision of health insurance independent of AFDC participation may reduce the work disincentives associated with the program for both disabled and non-disabled recipients. Simulations under a plan where all persons working 15 or more hours per week are covered by health insurance indicate that the labor force participation of AFDC recipients would increase by approximately 20 percentage **points**.⁸²

While shedding some light on the issue of the impact of welfare reform on recipients with disabilities, this study addresses only one aspect of the labor supply issue, that is, labor force participation. **It** does not illustrate how these reform strategies affect hours of work of

⁷⁹ This measure incorporates the probability of receiving single, dependent, or **no** insurance coverage if **employed**.

⁸⁰ In this study, "health compromised" refers to those mothers with difficulty performing one or more **ADLs** or who **report poor** or fair health.

⁸¹ The wage subsidy in these policy simulations is phased out at an hourly wage rate of \$7.00.

⁸² Two other studies (Moffii and Wolfe, 1992, and **Yelowitz**, 1994) also found the provision of Medicaid to have a significant negative effect on the labor force participation of AFDC recipients. Two other studies, however, did not find a strong relationship between Medicaid and work effort among AFDC recipients (**Winkler**, 1990, and Blank, 1988). These studies are discussed in more detail in Chapter 1 of this report.

compared to an estimated probability of from six to 11 percent for disabled recipients, depending on the measure of disability used in the **specification**.⁸⁹

In one specification of their model, Acs and **Loprest** also find a significant negative effect of disability on the likelihood of having any earnings. during the first twelve months on AFDC: those with multiple limitations are significantly less likely to have had any positive earnings compared to recipients with no limitations. In other-specifications, however, the alternative measures of disability utilized were not significantly related to the likelihood of earnings.

There are two interesting implications of this study regarding welfare work requirements and time limits. First, this study shows that a substantial number of recipients do work while on AFDC, including recipients who report they have functional limitations. On average, an estimated 30 to 40 percent of those with limitations had earnings at some time during the first twelve months on AFDC. This finding illustrates that many recipients with disabilities do have the capacity to work and therefore, a more refined definition of disability than "incapacitated by a health condition" may be necessary to determine the appropriateness of work and training requirements. Second, the findings show that while many recipients with disabilities may work, all else equal, a significantly lower proportion are able to exit AFDC as a result of their earnings compared to recipients without disabilities. This suggests that work and training programs need to address the functional limitations of recipients if they hope to be successful in facilitating recipients with disabilities to leave the welfare rolls.

4. **Disability Among Children in the AFDC Population**

In the debate over reform strategies that change the benefit structure to increase work incentives, require participation in work or training activities, or limit the duration of benefit receipt, the potential impact of such policies on AFDC families with disabled children merits consideration. These children may require care above and beyond the care required by healthy children. The additional care or resources necessary may limit the ability of single mothers with disabled children to participate in job training activities or to work. The work

⁸⁹ The probabilities are calculated using the regression coefficients and the mean values of the independent variables.

recipients already working or of those who newly enter the labor force. The study also provides only indirect evidence of the potential effect of training programs on labor force participation of AFDC recipients. To the extent that training increases the wage level a recipient commands in the market, the simulations of a **50** percent wage subsidy may give an indication of the effectiveness of training on labor force participation of recipients with health problems. There may be, however, other positive effects of training and education on labor force participation that do not affect the wage rate. Examples might include greater confidence and self-esteem, increased work ethic, or, for those with disabilities, rehabilitation and learning ways to function more productively in a work environment.

We are aware of no studies that explicitly evaluate the effectiveness of training programs for AFDC recipients with disabilities. The training program evaluations discussed previously found that such programs were least effective in raising the earnings of long-time AFDC recipients (Gueron and Pauly, 1991). If recipients with disabilities are on the rolls longer than those without disabilities, it may be that training programs are less effective for those with disabilities. Some evidence regarding the duration of time AFDC recipients collect benefits is suggestive that those with disabilities remain on the rolls longer than those without disabilities. Adler reports that 27.8 percent of disabled women on AFDC have collected benefits for ten or more years. The corresponding figure for non-disabled women is 19.4 percent (Adler, 1993). Using 1987 **SIPP** data, Shea estimates a median spell length of 10.1 months for AFDC recipients with a work disability compared to 4.6 months for those without a disability (Shea, 1992). In this study, an estimated 36 percent of recipients with a work disability remain on the rolls for at least 24 months compared to 19 percent of those without a work disability. An early study of turnover (exit and entry) in the AFDC program estimates that the expected duration of a spell of benefit receipt for those with disabilities is 48 months compared to 31 months for the average recipient (Plotnick, 1983). In all of these studies, however, the differences between disabled and non-disabled recipients is either not statistically significant or the statistical significance is not **reported**.⁸⁴

⁸³ In this study the exact definition of “work disability” is not defined. In addition, individuals receiving **cash** assistance from General Assistance programs are combined with those receiving AFDC in all **statistics** and estimates reported.

⁸⁴ The differences reported in Adler (1993) and **Plotnick** (1983) are not statistically significant. Shea (1992) does not report the regressions from which the AFDC **spell** lengths are estimated.

Two recent studies of the JOBS program provide some evidence that AFDC recipients with disabilities may either perceive or encounter barriers to participating in the program. A survey of JOBS enrollees conducted at seven sites found that nearly one in five enrollees believed they were unable to engage in education or training activities because of a health or emotional problem. The percentage who reported their health as a barrier to participation was much higher among respondents who had been on the AFDC rolls for two years or more compared to those receiving benefits for less than two years -- 22 percent versus 14 percent (Manpower Demonstration Research Corporation, 1994).

As **part** of another study of JOBS programs, AFDC and JOBS administrators were interviewed to obtain information on AFDC recipients with disabilities. Nearly all interviewees mentioned that clients with functional impairments experienced difficulty in finding and retaining employment. Many also stated that full-time JOBS participation may be difficult or impossible for participants with disabilities (Office of the Inspector General, **1992**).⁸⁵

The capacity of AFDC recipients with disabilities to engage in work and training activities is an important issue. Poor health may limit the activities an individual can undertake, but of equal relevance is that poor health may limit the number of hours an individual has available for work. One author has characterized disability as a condition that “steals time” (Oi, 1991). Individuals with disabilities may require more time for rest, personal care, and visits to the doctor than healthy individuals and therefore **have** fewer hours available to engage in work.

The Wolfe and Hill study discussed previously, which examines the health of single mothers, also examines the earnings capacity of single mothers. This study illustrates how poor health affects the number of hours single mothers may be able to work at “full capacity” and whether or not the earnings derived from work activity would be sufficient to keep such families out of poverty (Wolfe and Hill, 1993). Using data from the 1984 SIPP, **the** authors estimate hours worked and wage equations for single **mothers**.⁸⁶ The results indicate that poor

⁸⁵ The federal regulations for the JOBS program require that states average 20 hours per week of **participation** in JOBS activities per enrollee.

⁸⁶ The **hours** of work equation includes variables reflecting the mother’s health status (a variable reflecting **poor** or fair **health** and a variable reflecting the presence of one or more **ADLs**), the presence of children under 6, ages 6 to 18, and children with disabilities, personal characteristics, human capital

aspects that increase the wage level (education and experience) or job search activities will not be as effective in raising the earnings of recipients with health impairments as they may be for those without impairments.

The results of this study should be interpreted with caution, however. In this analysis, the authors implicitly assume that the individuals observed are working at their full capacity. This may not be a valid assumption, especially with respect to persons with disabilities. One example of how the results may be biased is in relation to disability transfers. Disability benefits, public or private, are usually paid on the condition that the individual is not engaged in substantial work activity. Disabled recipients of these benefits may choose not to work at their full capacity so as not to become ineligible for their benefits. Since no control for the receipt of such benefits is included in the model, the results may underestimate the true earnings capacity of persons with disabilities.

The extent to which recipients with disabilities exit the AFDC program, and in particular, exit with earnings, is addressed in a study by Acs and **Loprest** using data from the 1990 **SIPP** (Acs and **Loprest**, 1994). The authors estimate the impact of disability on the probability of exiting AFDC within one year, working while on AFDC, and exiting AFDC with earnings within one year. Four alternative measures of disability are used in four different specifications of the model: 1) an indicator of any reported disability; 2) an indicator of difficulty performing at least one activity (ADL or IADL); 3) two dummy variables, one indicating difficulty with at least one activity, the other indicating difficulty with two or more activities; and 4) separate indicator variables for difficulty performing **ADLs** and **IADLs**.⁸⁸

The results show that, overall, women with disabilities are not significantly less likely to exit AFDC than women without disabilities. This result is in accord with earlier studies of AFDC exits that, while finding a negative relationship between disability and exiting AFDC, the relationship is not statistically significant (Hutchens, 1981, Plotnick, 1983). Acs and **Loprest** do find, however, that disability significantly reduces the likelihood of exiting AFDC with earnings. This was true regardless of the measure of disability used. The estimated probability of the “average” non-disabled AFDC recipient exiting with earnings is approximately 23 percent

⁸⁸ Other variables included in all specifications were age, education, marital status, children under age six, race, geographic region, an indicator for previous earnings, and the level of AFDC benefits.

health has a significant negative impact on the number of hours worked but does not significantly affect the wage rate of those who do participate in the labor force.

Wolfe and Hill use the parameters of their estimated hours and wage equations to determine the average health-adjusted “earnings capacity” of single mothers with differing health status. The authors define earnings capacity as the amount an individual would earn if she were to work full time, using 40 hours per week as the basis of the calculation. The value is calculated using the individual’s characteristics and the coefficients derived from the hours and earnings equations. Hours of work are “health adjusted” using the health coefficients in the hours equation.

The results illustrate the large impact of poor health on the earnings capacity of single mothers. Mothers who report no **ADLs** work an average of 37.9 hours at capacity compared to 16.8, 8.3, and 4.5 average hours at capacity for mothers with one, two, and three **ADLs** respectively. The fewer hours of work translate into very low earnings capacities for single mothers with health impairments. Those with one, two, and three **ADLs** have estimated annual earnings capacities of \$4,466, \$1,919, and \$973 respectively, compared to \$10,714 (1964 **dollars**) for single mothers with no **ADLs**. Based on estimated earnings capacity and family size, the authors find that even if single women worked at their full capacity, a high percentage would still be in poverty if they had to rely solely on their earnings for income. This is particularly true for women in poor health. Overall, 37 percent of single-mother families would be in **poverty**.⁸⁷ By health status, the poverty rates would be 22.5 percent of single mothers with no **ADLs**, 94.3 percent for those with one **ADL**, and 100 percent for those with two or more **ADLs**.

The Wolfe and Hill earnings capacity study conveys an important message with respect to the effectiveness of training programs for AFDC recipients with disabilities. That is, training programs will be ineffective for those with disabilities unless they specifically address ways to increase the number of hours an individual is capable of working. Programs that focus only on

characteristics, and the availability of other sources of income including the maximum **AFDC** benefit. The wage equation includes all of the above except the children and income variables, and also includes a selection correction for the decision to work **positive** hours.

⁸⁷ The actual percentage of single-mother families in poverty is 52.5% after all family income is considered.

incentives generated by reform policies may be further diminished for mothers of disabled children because of the importance of having Medicaid coverage for their children with health problems.

In this section, we present a review of the literature that contains information on the prevalence of disability among AFDC children and the characteristics of these children. We then present a discussion of studies that provide evidence of the potential impact of welfare reform strategies on AFDC mothers with disabled children.

a. Prevalence and Characteristics

Less research has been done on disabilities of children in AFDC families than on disabilities of their parents. Although data on this topic has been included in some studies of adult AFDC recipients, no comprehensive study has been undertaken. The **SIPP** does include questions about the disability of the respondent's children who are living in the household, although they are less specific for children than for **adults**.⁹⁰ Several studies based on these data provide summary statistics on the prevalence and characteristics of AFDC children with disabilities.

Using data from the 1984 SIPP, two studies have found that the prevalence of disability among AFDC children was higher than among children in the general population (**Mathematica** Policy Research, 1989 and 1990). The percentage of persons under age 18 with a physical or mental limitation was reported to be 5.4 percent for AFDC recipients and 3.7 percent for the total population (Exhibit V.B.5).

⁹⁰ Parents are asked whether their children under 6 have any physical, learning, or mental health condition" that limits at all "the usual kind of activities done by most children their age" and whether children in this age range have received therapy or diagnostic services "designed to meet their developmental needs." Parents are asked whether children age 6 to 21 have a limitation in their ability to do regular school work and whether they have receive special education services. Parents are also asked whether their children age 3 to 14 have any "long lasting" condition that limits their ability to walk, run, or use stairs.

Exhibit V.B.5

Prevalence of Limitations in Functioning and in Work among Persons Under Age 18

	AFDC Recipients	Total Population
No Limitation	94.6%	96.3%
Any Limitation*	5.4%	3.7%
Physical Limitation	3.6%	2.3%
Mental Limitation	2.1%	1.8%

Source: **Mathematica Policy Research (1990)** and **Mathematics Policy Research (1 989)**, based on data from the 1984 Survey of Income and Program Participation.

- The sum of the percentage of children with physical and mental limitations does not equal the percentage for any limitation because the categories overlap.

Using **1990 SIPP** data, **Acs** and **Loprest** found that 7.5 percent of AFDC families with children have a child with some limitation (Exhibit V.B.6). Among AFDC families with children younger than age six, 2.9 percent reported a child with a limitation on usual activities and 4.0 percent reported children that receive therapy or diagnostic services. Among those families with children ages six to 21, more than 10 percent reported children who received special education or had limitations on their ability to perform school work (**Acs** and **Loprest, 1994**).

Exhibit V.B.6

Disability Among the Children of Adult AFDC Recipients

	Percent of All AFDC Families	Percent of AFDC Families with Children this Age
Age < 6; limitation on usual activities	1.4%	2.9%
Age < 6; received therapy or diagnostic services	2.0%	4.0%
Age 6 - 21; limitation on ability to do school work	5.6%	11.0%
Age 6 - 21; received special education services (asked only of parents who answered "yes" to previous question)	5.0%	10.6%
Age 3 - 14; limitation in ability to walk, run, or use stairs	1.8%	3.3%
Total - any limitation	7.5%	

Source: **Acs** and **Loprest (1994)**, based on data from the **1990 Survey** of Income and Program Participation.

Using the same data, Adler found that a greater percentage of adult AFDC recipients with disabilities have children who have disabilities than adult recipients without disabilities (Adler, 1993). Among adult female recipients with disabilities, 22.6 percent had disabled children compared to 10.4 percent of recipients without disabilities. The reasons for this fact have not been explored.

b. The Impact of Reform Strategies on AFDC Recipients with Disabled Children

Several studies have examined the effect of children's health status on maternal labor supply. Many of these are the very same studies that examine the relationship between health status and work effort of single mothers and AFDC recipients that were discussed in the previous section. Here, we present their findings regarding the impact of having disabled children on work effort and discuss the implications of the findings for welfare reform policies.

An early study by **Salkever** uses data from the 1972 Health Interview Survey to estimate the effect of children's health on maternal work status (Salkever, 1962). The author estimates a model of the probability of working, including variables representing the presence of children with disabilities, for four different samples: white two-parent families, nonwhite **two-**parent families, white female-headed families, and nonwhite female-headed families. The results indicate that the presence of a disabled child has a significant effect on the probability of working only among mothers in white two-parent families. The coefficient implies a 10 percent reduction in the probability of working (a 20 percent reduction in the probability of usually working) among mothers in white two-parent families. The corresponding coefficients for single mothers show a positive relationship between the presence of a disabled child and the probability of working, but are not statistically significant.

A recent study by **Mauldon** uses data from the 1966 National Health Interview Survey (NHIS) to estimate labor force participation equations for a combined sample of single and married mothers (Mauldon, 1992). The equation includes variables for the mother's health and demographic characteristics, proxy variables for other family resources, and several variables to measure the relationship between having a disabled child and maternal labor force

participation.” The results indicate that the presence of a child with limitations does reduce the likelihood of maternal employment. The older the disabled child and the more serious the disability, the lower the likelihood that the mother will be employed. Other things constant, the presence of a disabled child reduces the likelihood of maternal labor force participation between 5 and 15 percentage points.⁹²

Neither **Salkever** nor **Mauldon** include welfare programs in their models of labor force participation. The presence of transfers, such as AFDC or SSI for children, are likely to influence a mother’s decision to work, and receipt of such income is likely to be correlated with having a disabled child. Hence, the effect of a disabled child on maternal labor supply may be overestimated in these studies.

The Wolfe and Hill studies and the Acs and **Loprest** study discussed previously also examine the effect of a child’s disability on maternal work. In the Wolfe and Hill studies; the presence of a disabled child has a significant negative impact on both the probability of working and hours of work among single mothers (Wolfe and Hill, 1993 and 1995). The policy simulations, including simulations of a wage subsidy and a reduction in AFDC benefits, indicate that single mothers with disabled children are less responsive to work incentives than single mothers **overall**.⁹³ The simulations also indicate that the labor force participation of single mothers with disabled children is very responsive to policies that provide health insurance coverage not contingent upon AFDC program participation.”

Acs and **Loprest**, in examining only women who begin a spell of AFDC, find somewhat counterintuitive and contradictory results. They find that while the presence of a disabled child has no significant impact on the likelihood of exiting AFDC or exiting AFDC with earnings

⁹¹ The child disability variables were constructed using a four point scale with 0 being no limitations and 3 being unable to perform major activity. Separate variables, based on these disability scores, were **constructed** for children ages **0-2, 3-5, 6-11**, and 12-17.

⁹² The estimated mean likelihood of labor force participation is 67 percent.

⁹³ The estimated impact on labor force participation of a 50 percent wage subsidy is an 11.5 percentage point increase for mothers of disabled children compared to 15.1 percentage points overall. A 50 percent reduction in AFDC benefits is estimated to increase labor force participation of mothers with disabled children by 3.6 percentage points compared to 6.7 percentage points for single mothers overall (Wolfe and Hill, 1995).

⁹⁴ For example, a policy that covered all children is estimated to increase labor force participation of mothers with disabled children by 22.6 percentage points compared to an 11.6 percentage point increase for single mothers overall (Wolfe and Hill, 1995).

within twelve months, it does have a significant and **positive** effect on the likelihood of working at any time during the first twelve months of benefit receipt (Acs and **Loprest**, 1994). This was true only for the specification that included separate variables for children with limitations aged less than six, ages six to 21, and if a child aged three to 14 has a limitation related to walking. In this specification, the coefficient for the variable representing a child aged six to 21 with a limitation is significant and positive. The authors offer no explanation for this finding other than the fact that there is a very small number disabled children in the sample (**N=35**). The small sample size may have lead to spurious results.

5. AFDC and SSI Interactions

A potential result of welfare reform measures that impose greater restrictions or requirements on AFDC recipients is that participants (and potential participants) may increase efforts to obtain income from other sources, including other sources of welfare payments. For persons with disabilities, a likely alternative source of public income support is the Supplemental Security Income (SSI) program.

It is possible for a household to receive both SSI and AFDC benefits; individuals, however, cannot receive both. For example, if a woman is sufficiently disabled to receive SSI, her children may still receive benefits under AFDC. In this situation, the AFDC benefits are determined as if the disabled mother (and her SSI income) were not part of the household. A household may also collect both AFDC and SSI benefits if it is the child who is disabled and receives SSI. In this case, the mother may be eligible for AFDC as the caretaker of the child. **Again**, the AFDC benefit is computed as if the disabled child were not a part of the household.

In general, SSI benefits are more generous than the benefits under AFDC. Exhibit V.B.7 shows the household income of a disabled single mother with two children under two scenarios: if receiving only AFDC benefits, and if receiving a combination of SSI and AFDC benefits. The benefit income in three states (low, average, and high AFDC benefit states) are depicted for comparison. In all three states, the combined **SSI/AFDC** benefit is considerably higher than the AFDC only benefit for a family of three. Even in high AFDC benefit states there is a strong incentive for disabled AFDC recipients to apply for SSI benefits regardless of reform strategies adopted in the future.

Exhibit V.B.7

AFDC and SSI Benefit Income for a Family of Three, 1994^a

State	AFDC Benefits Only	SSI + AFDC Benefits
Alabama	\$ 164	\$ 583
Nebraska	\$ 364	\$ 767
California	\$ 607	\$1,093

^aAssuming disabled mother of two children with no other source of family income.

Source: Committee on Ways and Means (1994) and author's calculations.

Adler's analysis of 1990 **SIPP** data found that 13.7 percent of disabled women ages 15 to 45 on AFDC (or 2.6 percent of all women in that age range on AFDC) reported receiving SSI. About a third of the disabled AFDC recipients report having applied for SSI benefits, and about a fifth report having applied for Social Security Disability Insurance (DI) benefits at some time in the past (Adler, 1993). The finding that only about a third of those with disabilities had applied for **SSI** may be attributable to a variety of factors: most disabled AFDC recipients do not perceive their disabilities as severe enough to qualify for **SSI**; a lack of knowledge about the **SSI** program; or an unwillingness to go through the onerous application process for SSI.

We have found no studies that provide information on the extent to which the welfare reform strategies discussed here might induce AFDC recipients with disabilities to apply for alternative benefits such as **SSI**. Though we have no empirical evidence of the likelihood that AFDC recipients with disabilities would be induced to apply for, and would receive, **SSI** under proposed welfare reform strategies, we would expect some effect for several reasons. First, the imposition of work and time limit requirements on non-exempt AFDC recipients necessitates an evaluation of disability status since disablement is typically one condition under which an individual may be exempted from work and time limit requirements. A by-product of such "screening" for disability in the AFDC program may be increased referrals to the SSI program. In fact, President Clinton's welfare reform proposal called for state agencies to assist exempted disabled recipients in filing for SSI when appropriate. Second, advocates for people with disabilities are likely to increase their efforts to help AFDC families obtain SSI

benefits. Third, as discussed above, AFDC time limits and work requirements may increase the relative attractiveness of the SSI program to recipients with disabilities, in spite of the more arduous application process.

Though not directly related to the interaction between AFDC and SSI, a recent study of application growth in the DI and SSI programs illustrates how changes in one type of welfare program (state general assistance (GA) programs) can affect the number of applications to the SSI program (**Lewin-VHI, 1995**). Preliminary findings from this study indicate that reductions in GA caseloads have a significant positive effect on applications to SSI. The results are particularly strong for SSI applications based on mental impairments. The estimates indicate that a 10 percent decrease in per capita GA caseloads would induce a two to three percent increase in per capita applications to SSI based on mental impairment.=

C. interviews with State Welfare Departments

1. Introduction

In this section we summarize our findings of the policies and procedures of selected state AFDC programs and demonstrations, and how they affect individuals with disabilities. We discuss the processes and criteria used to determine disability, what type of employment or training is offered to or required of recipients with disabilities and recipients who have children with disabilities, and where recipients with disabilities are referred. We also examine several county-specific demonstrations to get a better understanding of how various welfare reforms may affect individuals with disabilities. ⁹⁵

⁹⁵ The estimates reported here are for applications for SSI only, and do not include persons applying for both DI and SSI concurrently.-

⁹⁶ Iowa, South Dakota, and Vermont have statewide demonstrations, essentially making the demonstration the official JOBS program. Oregon's demonstration (Jobs Waiver Project) was implemented in most counties, and since most of the applicable recipients participate under the demonstration, it has essentially become the official JOBS program. Colorado's Personal Responsibility and Employment Demonstration is limited to employable adults, so persons determined to be disabled are exempt from participation, and are also not allowed to volunteer. However, there may be persons with disabilities who are not determined to be exempt, so they are required to participate. For these individuals the demonstration may offer special services, such as coordinating their training with vocational rehabilitation.

To date, little is known about how AFDC programs and policies provide incentives or disincentives for persons with disabilities to find or maintain employment. We interviewed AFDC administrators from eight states in order to examine how particular reforms in each state's AFDC program affect recipients with disabilities and recipients who have children with disabilities. **The** states we selected for interviews were chosen based on the nature of their recent welfare reforms: Colorado, Florida, South Dakota, and **Vermont** limit the duration of benefit receipt; Iowa, Oregon, and Utah require recipients to participate in employment or training activities in order to receive benefits, and impose immediate sanctions for non-compliance; New York requires those AFDC applicants who may be eligible for Supplemental Security Income (SSI) to apply for SSI in order to receive benefits. We summarize the relevant components of the state programs and demonstrations below (Exhibit **V.C.1**).

The administrators we interviewed from each state are directly involved in the daily activities of AFDC and are familiar with the policies and practices of the program and its reforms. The following is a list of the administrators we interviewed:

- **Colorado:** Dixie Anderson, AFDC Director; and Maynard Chapman, Project Officer for the Personal **Responsibility** and **Employment** Program
- **Florida:** Molly **Mellor**, Senior Human Services Program Specialist; Judy Moon, Program Administrator; and Don Winstead, Project Director for Florida's Family Transition Program
- **Iowa:** Barbara Russell, AFDC Policy Specialist
- New York: Patricia Monks, Program and Policy Administrator
- **Oregon:** Sue Smit, Assistant Manager for JOBS Program; and Bob **Staver**, Program Analyst
- **South Dakota:** Dennis **Pelkofer**, Administrator of Assistance Payments
- **Utah:** John Davenport, AFDC Program Specialist
- **Vermont:** Sandra Dooley, Deputy Commissioner for **the** Department of Social Welfare

Exhibit V.C.I

Summary of State AFDC Program Characteristics

Characteristic	CO	FL	IA	NY	OR	SD	UT	VT
Disability Determination								
Does not allow any exemptions from JOBS							D	
Makes determinations of disability at various time intervals after initial determination		X				X	X	
Different criteria for determining disability for AFDC eligibility and JOBS exemptions		x	x		x	x	x	
One set of criteria for determining disability	X			X				X
For AFDC eligibility, disability is defined as having a condition that significantly affects a person's earnings capacity or ability to care for a child		x	x			x	x	
For JOBS exemption, disability is defined as having a condition so severe that a person cannot participate in any kind of training or employment activities for at least 30 days		X	X			X	X	
Automatically considers a parson to be disabled if he/she is on SSI or DI	x	x	x	x			x	x
Requires medical evidence to determine disability even for those on SSI or SSDI					x	x		
Other Features Relevant to Recipients with Disabilities								
Provides individualized services in JOBS program	x	x	x		x	x	x	x
Has a JOBS provision requiring participants to develop an employment plan	X		X		x	x	x	x
Requires recipients to apply for SSI if they may be eligible	X			X		x	x	
Requires recipients to apply for other benefits (not including SSI)	X	X				X	X	X
Has a well-developed referral system with case managers acting as advocates for recipients		X			X	X		
Exempts a person from JOBS if his/her child has disabilities and is on SSI	X			X			X	
Subsidizes child care at market rate	D		x		x	x		X
Subsidizes child care at a reduced rate	X	X		X			X	
Offers higher child care subsidies for children with disabilities		x	X		X			
Time limit on benefit receipt	D	D				X		X
Provides a one-time payment to individuals who have a crisis need							D	--

. D refers to the state's county-specific demonstration project; X refers to the statewide AFDC or JOBS program.

2. Screening for **Disabilities**

All of the states screen for disability for primarily two reasons? to determine eligibility for AFDC benefits and to determine whether a recipient is exempt from participating in Job Opportunity and Basic Skills Training Program (JOBS). Correspondingly, all states usually identify disability when determining eligibility and/or when initially determining exemption from JOBS. Some states also make **determinations** of disability at subsequent time intervals to verify that the person still qualifies as being disabled and eligible for AFDC or exempt from JOBS, especially for those recipients who are temporarily exempt due to a short-term disability.

Most states have two sets of criteria to determine disability. The criteria used to determine disability to qualify for AFDC eligibility is less strict than the criteria used to determine disability for exemption from JOBS. Some states, though, use only one set of criteria to determine disability for both eligibility and exemption.⁹⁸ Thus, if these states determine an individual to be disabled, then he/she is both eligible for AFDC benefits as well as exempt from JOBS participation.

Disability is an issue for AFDC eligibility most often in the case of a two parent family applying for benefits. In order for a two-parent family to be eligible to receive benefits, it must show that the child is deprived. One way to qualify as being deprived is to show that one of the parents is disabled. Most states, when determining eligibility, qualify a parent as being disabled if he/she has a disability which significantly affects his/her earning capacity or ability to care for a child for at least 30 days. Oregon determines an individual to be "incapacitated" if he/she is unable to participate in a specific occupation (usually his/her previous occupation) for at least 30 days.⁹⁹

⁹⁷ Some states also screen for disabilities in order to determine whether a person might be eligible for **SSI** benefits: if applicants or recipients may be eligible for **SSI** benefits, then these states require them to **apply** for **SSI** in order to receive AFDC benefit.

⁹⁸ The criteria is if a person is unable to participate in employment or training activities for 30 days or more, then he/she is determined to be disabled.

⁹⁹ Oregon has two distinct definitions of disability: the more severe "**disability**", where a person is unable to participate in any employment or is unable to care for a child for at least 30 days; and "incapacity", where a person is unable to participate in a specific occupation (usually his/her previous occupation) for at least 30 days. Thus, a person may be eligible for AFDC benefits if he/she is determined to be

Disability is an issue for exemption from JOBS since all of the states exempt adult AFDC recipients from JOBS if they are determined to be disabled. In this case, most states determine a recipient to be exempt from JOBS if his/her disability is so severe that he/she cannot participate in any kind of training or employment activities or is unable to care for a child for at least 30 days.

* All of the states require applicants who are part of a two parent family -- where one of the parents claims to have a disability -- and recipients who claim to be exempt from JOBS to provide some type of verification of disability.¹⁰⁰ These states accept a doctor's statement or evidence from medical records indicating the length and severity of the disability in relation to the person's ability to participate in employment or training activities or to care for a child.¹⁰¹ Most states automatically determine a person to be disabled if he/she is on SSI or Social Security Disability Insurance (SSDI), and allow his/her household AFDC benefits (if he/she is part of a two parent family) as well as exempt the person from JOBS. Other states, though, still require examination of a person's medical records to determine disability even if he/she is on SSI or SSDI. Utah requires verification of disability only if the person is in a targeted group for JOBS participation -- a teen parent (16-22 years old), a long term recipient (three out of last five years), or a caretaker with a child of 16 years or older (since a recipient will lose benefits once the child turns 16) -- and claims exemption.

3. Training for Those with Disabilities

All of the states allow recipients **with** disabilities who are exempt from JOBS to participate in JOBS, giving them access to the same activities and resources as non-exempt **participants**.¹⁰² Although none of the states have special policies or provisions for these

'incapacitated', but may **still** be required to participate in JOBS. if the person is not determined to be "disabled".

¹⁰⁰ In theory, New York does not allow a person to be exempt from JOBS unless he/she provides verification of having disabilities. In practice, though, since New York is understaffed, It is not able to follow-up with these people to ensure that they participate in JOBS. Thus, there are many non-exempt **people** in New York who do not participate in JOBS.

¹⁰¹ Some states (South Dakota and Vermont) have medical consultants who specialize in reviewing a **person's** records in order to determine whether he/she qualifies as being disabled.

¹⁰² In Colorado, recipients with disabilities who are exempt from JOBS can volunteer to participate, but JOBS will only serve them if it has not yet met its quota ((55 percent of the targeted population). Thus, JOBS would not serve people if it has already met its quota.

individuals, all states, with the exception of New York, provide individualized services in JOBS, including, for most states, a provision where participants are required to develop some type of individualized employment plan detailing the steps they and AFDC need to take for the participant to become self-sufficient. ¹⁰³ included in these steps would be any training, employment, child care, or other services which the participant needs to fulfill the plan. Thus, through the individualized service and employment plan which most JOBS programs offer, recipients with disabilities can specify and are able to receive the special services -- such as transportation or vocational rehabilitation -- that they may need in order for them to engage in training or employment activities.

All of the administrators we interviewed stated that individuals who are exempt from but participate in JOBS would be greeted with enthusiasm because of their demonstrated motivation, and that AFDC would do everything it could to support them. However, except for the administrator from Florida, all of the administrators we interviewed indicated that instances of an exempt person with disabilities who volunteers to participate in JOBS are extremely rare • administrators from South Dakota and Utah could not recall a single case where this had occurred.

4. Referrals

All of the states make referrals for individuals with disabilities primarily to Vocational Rehabilitation and SSI.¹⁰⁴ In addition, referrals are occasionally made to Veteran's Affairs, SSDI, drug and alcohol treatment centers, and local services. Some states also require recipients to apply for other benefits (e.g. Unemployment Compensation, SSDI, Veterans' Benefits, Child Support) in order to receive AFDC benefits. In general, referrals are made based on what the AFDC recipient requests; thus, referrals may not be given if they are not requested. Some states have a more developed referral system, where the case manager (JOBS or AFDC) acts as the recipient's advocate, making appropriate referrals as well as following up with the recipient and providing any necessary assistance (e.g. filling out forms,

¹⁰³ New York, because it is severely understaffed, does not have the capabilities or resources to provide individualized services for disabled JOBS participants.

¹⁰⁴ In Florida, if a person is referred to Vocational Rehabilitation, he/she is still considered a client of JOBS, and any treatment or training for the person must first be approved by JOBS.

getting information). In Florida, the JOBS case manager can determine what services a person needs to receive in order to be ready to participate in JOBS, and can also refer a person back to the main AFDC office and recommend that the person be exempt from JOBS.

5. Children with Disabilities

None of the states actively identify children with disabilities. The reason for this is that there is no impact on general eligibility for AFDC for a person who has a child with disabilities. Identification occurs only when it is an issue for JOBS exemption or if the child is on SSI (an eligibility issue). The JOBS program requires all AFDC applicants and recipients whose youngest child is age three or over (or age one or over, at the state's option) to participate in JOBS. If a person is determined to be exempt because he/she needs to care for a child who is under the age limit, then there would be no further steps taken to identify whether the child is disabled since the person is already exempt. However, if the person has a child who is over the age limit for exemption and indicates that the child has disabilities, then AFDC would actively make a determination as to whether the person is exempt from JOBS because he/she needs to care for the child full-time.

Most states do not automatically exempt a person from JOBS if he/she has a child with disabilities, even if the child is on SSI. In order for a person to be exempt, there must be some type of verification (e.g. a doctor's statement) or determination (by caseworker or medical consultant) that the person must care for the child full-time. Some states though, do not require those who have a disabled child to participate in JOBS training and employment activities, and disability is determined by the child being on SSI or having medical **verification**.¹⁰⁵ In Iowa, however, there are no exemptions to JOBS at all, even if a person must care for a child full-time. The JOBS program considers this situation as another barrier to **take** into account when developing a self-sufficiency plan for that individual.

All of the states offer some type of child care **service** if an individual is required to or volunteers to participate in JOBS.¹⁰⁶ Most states subsidize child care at the market rate, which

¹⁰⁵ Colorado and New York do not require it to be shown that the child might be cared for full-time.

¹⁰⁶ Florida does not require a person to participate in JOBS if AFDC cannot provide appropriate child care (e.g. if a person lives in a rural area where no one can provide child care except for that person).

is determined periodically by a survey. Other states subsidize child care at a reduced rate. Some states **also** offer a higher rate of subsidy if the child has disabilities and needs special care or services. Florida also provides subsidized child care if a person is unemployed or if a person leaves AFDC due to employment.

In addition to subsidizing child care, Florida makes referrals for children with disabilities to Children's Medical Service (CMS). CMS is a **part** of AFDC which tracks and provides **services** (e.g. surgery, referrals to appropriate programs) for a child until he/she is age 18. The CMS also oversees child care issues, handles vouchers for child care, and has access to information and resources for appropriate referrals.

6. County-Specific Demonstration Programs

a. Florida

Florida's Family Transition Program (**FTP**) was implemented in two counties (Alachua and Escambia) in February, 1994, and the waivers for this demonstration last for a period of seven years. The primary goal of FTP is to change AFDC from being a long-term entitlement program to a time-limited transition program to help recipients become self-sufficient. One distinctive component of FTP is that benefits are limited to 24 months out of a 60 month period for most recipients, and 36 months out of a 72 month period for target groups (those recipients who are under 24 years old and do not have a high school diploma, and those who have been on AFDC more than three out of the last five years). FTP also expands services, such as providing intensive case management with a focus on determining what services the person needs (e.g. education, employment, transportation), providing better child care and support services, providing 24 months of transitional child care once a person becomes self-sufficient, and disregarding **\$200/month** plus **50** percent of earned income if the recipient is working. Participants are required to develop a self-sufficiency plan which details what they and FTP can do to help them become self sufficient.

FTP uses the same criteria as the state AFDC program to determine disability. A person with disabilities who is exempt from FTP can volunteer to forgo the exemption and participate in FTP. However, once the person forgoes the exemption, he/she is treated like other participants, and the extent to which he/she receives special services is dependent on

whether his/her self-sufficiency plan dictates that they are necessary. This situation, though, is extremely rare -- the administrator we interviewed stated that the services FTP provides are ones which recipients with disabilities can receive elsewhere, and that the benefits of the program may not outweigh the costs of accepting the time-limit. FTP exempts a person who has a child with disabilities only if it determines that the person must care for the child full-time; those with children on SSI are not automatically exempt and must go through the same process of proving the necessity of caring for the child full-time.

b. **Utah**

Utah's Single Parent Employment Demonstration (SPED) was implemented in four counties in January, 1994. SPED was developed because Utah believed that JOBS was not going far enough to provide the employment of people. SPED is unique in that it does not allow any exemptions to the program, so all people who are in the geographic area which has this demonstration are considered non-exempt and must participate in the demonstration program. The goal of SPED is to transform AFDC into an employment program, and to increase household income by any means (e.g. employment, receiving alternate benefits) in order to get recipients off AFDC through increased income, not a time limit.

Applicants first meet with a self-sufficiency worker (as opposed to an eligibility worker) in order to determine if the applicant has a crisis need or a chronic need. If the need is crisis oriented, then the worker works with the person to develop a plan to get through the crisis without AFDC. In order to help the person, SPED can give up to three months of AFDC benefits to the person as a one-time payment to help him/her get over the crisis and, hopefully, not return to AFDC in the future. If the individual's needs are chronic, then an AFDC award is made, but the recipient must also develop an employability plan, meaning a plan for employment, training, or other ways of increasing income. Each individual develops an individualized employability plan; if the person fails to comply, he/she will lose **\$100/month** of benefits. As an incentive for employment, the first **\$100/month** and 45 percent of earned income is disregarded.

SPED does not make any attempt to identify persons with disabilities (except if they are part of a two-parent family, which is an eligibility issue) since they are treated in the same way as other participants. SPED uses a doctor's recommendation to determine what a participant

with disabilities is capable of doing in terms of increasing household income, either through employment or by obtaining **SSI** benefits. If a participant's application is denied, then SPED develops other ways for the person to increase his/her income (e.g. sending person to **Vocational Rehabilitation** for specialized training).

There has been some success with SPED, but many participants are still on AFDC. The administrator for Utah stated that success may be limited because even though employability plans are being developed, people may not be following through with them, perhaps because case workers are not confronting or encouraging them enough. The administrator also noted that SPED would be difficult to implement state-wide due to the high child-care costs associated with the expansion of the program. Since the demonstration requires all recipients to participate in some kind of income-increasing activity, many more people are not able to stay home to care for their children, thereby increasing the child-care costs which AFDC subsidizes. The administrator also commented that one aspect of the demonstration which he especially liked was that it was individualized and treated all participants in the same way. He believed that the state AFDC program automatically exempts people from JOBS even when they have a possibility of being employed or obtaining more income.

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CHAPTER SIX
DESCRIPTIONS OF SELECTED PROGRAMS

A. Introduction and Summary

In this chapter we present our findings on four case studies of programs that help enable people with significant disabilities to participate in the labor force? The objective of this component of the project was to identify several promising employment-oriented programs providing comprehensive services to people with significant disabilities.

It is important to bear in mind that this component of the project was limited in scope. Although, as described below, an effort was made to obtain good programs for the case studies, an exhaustive search was not undertaken, so the programs selected may not be the best programs nationwide. In addition, the limited number of case studies conducted precluded us from including programs primarily serving individuals with many particular disabilities of interest. For example, none of the programs studied specialize in serving individuals with visual impairments, and none specialize in serving the mentally retarded/developmentally disabled population (although some individuals with these disabilities are served in the case study programs). We also did not include small programs or programs offering less comprehensive services. Finally, time and resource constraints prohibited us from conducting in-depth site visits to the programs and from collecting the detailed cost, service, and outcome data that is essential for an impact evaluation and cost-benefit analysis; instead, we provide an overview of the programs and describe the common features that appear to lead to successful outcomes.

For each program, we discuss the population served, the sources of referrals and funding, and any evidence available on the program's success in placing participants in competitive employment. Cost data are included for those programs that provided us with

¹⁰⁷ We attempted to include a fifth program, but the program selected was unable to provide the information we requested.

relevant information. Finally, we describe the distinguishing components of each program and offer possible explanations for the programs' success.

Twenty recommendations for case studies were gathered from members of the Advisory Group based on several criteria: the program provides or coordinates a comprehensive range of services to enable individuals with disabilities to participate in the labor force; the program targets individuals with significant disabilities (severe physical impairments or mental illness); and the program has some evidence of success? Administrators from each program were then **interviewed** to gather information on the types of clients served, the services offered, how clients and the program are funded, and any measures of success.

After receiving nominations, project staff selected four programs to -be examined in greater detail. Administrators from each program were interviewed more extensively for information and data concerning various aspects of their **programs**.¹¹⁰ These programs were selected for several reasons: the comprehensive range of services they provided, the types of clients they served, and their success in placing clients into employment. Characteristics of each program are summarized below (Exhibit VI.A.I).

1. Summary of Findings

Our main findings from the case-studies include the following:

Program Characteristics and Clients

- San Francisco Vocational Services (SFVS) offers comprehensive vocational services, including evaluation and assessment of skills and interests, vocational and skills

¹⁰⁸ The Advisory Group meeting for the **ODALTCP/ASPE** project titled "**Barriers** and Incentives to Improving Labor Force Participation among Persons with Significant **Disabilities**" took place on September 30, 1894.

¹⁰⁹ Administrators from each of the programs provided us with documents **describing** their programs and services.

¹¹⁰ The following are the administrators we interviewed:
San Francisco Vocational Services: Craig King, Executive Director
Career Desian, Inc.: Dr. Jerry Dyksterhuis, President
Thresholds: Tom Kinley, Project Director of Thresholds North; Sally **Urwin**, Director of Program Evaluation; and Jessica Jonikas, Director of Training
Rehabilitation Institute of Chicago: Ray Sakalas, Director of Vocational Rehabilitation Department

training, job search skills training, and job placement. SFVS mainly **serves** individuals with visual, orthopedic, or emotional disabilities, most of whom **have** severe disabilities.

- Career Design, Inc. (CDI) focuses on providing a variety of evaluation and job placement services in its **Worknet** program. In addition, CDI's private sector program provides case management and job **placement services for workers'** Compensation cases, **CDI's Worknet** program serves individuals 'with a **wide** variety of disabilities, including those with orthopedic disabilities, mental illness, mental retardation, and visual impairments. The majority of **Worknet** clients have severe disabilities. **CDI's private** sector program provides **services** for workers' **compensation** cases, and most of these clients **have musculoskeletal** impairments.
- Thresholds' comprehensive vocational services include vocational assessment, skills and social training, job placement, and ongoing **mobile** job support. Thresholds serves only those with **severe** mental **illness**, the **majority** of whom are diagnosed with schizophrenia.
- The Vocational Rehabilitation Department (VRD) of the Rehabilitation Institute of Chicago (RIC) offers comprehensive vocational **services**, including vocational evaluation, internships, job **seeking** skills training, and job placement. VRD serves mainly those with neurological impairments.

Program Outcomes

- SFVS served 437 individuals in 1994, 114 of whom participated in its job placement program. Of the 114 in its job placement program, 100 (87 percent) were placed into competitive employment.
- **CDI** served 408 individuals in its **Worknet** program in 1994, and 59 percent of these participants **were placed** into competitive employment. CDI **also** provided services for 238 workers' compensation cases in 1994, and 62 percent of **these** cases **were successfully resolved**.¹¹¹
- Thresholds **served** 2,803 clients in 1994. Of the clients in day programs who were receiving vocational services, approximately 80 percent **were employed** while in Thresholds. This represents 50 percent of all individuals who participated in day **programs**.¹¹² Six months after leaving Thresholds, the percent who remained employed ranged from 34 to 45 percent of all day program clients.
- **RIC's** VRD **serves** approximately 700 individuals each year, a portion of whom have job or training placement as a goal. In 1994, 184 clients in VRD had placement as a goal, and 64 percent of these individuals were successfully placed.

¹¹¹ Case resolution may involve a lump sum payment for injuries, medical treatment, **and/or** returning to employment.

¹¹² Day programs are part of the multitude of services and programs that Thresholds offers, and vocational **services** are just one aspect of the services provided by day programs.

Replicability of Key Program Features

- All of the programs provide a comprehensive range of **services** that are individually tailored to meet each client's specific needs and goals, and three of the programs' administrators cite their comprehensive and individualistic approach as a key to their success. The one remaining program cited its strong connection to the business community as a key to its success; other programs also had connections to the business community, but they did not specifically cite the connections as keys to their success.
- It appears that many of the characteristics of the programs, though sometimes unique, are replicable -- it does not appear that these distinguishing characteristics can only exist within particular programs.

Obstacles to Evaluation

- In general, there is insufficient information to distinguish between the impact of the program on successful employment outcomes and the extent to which the program selects clients who have a high probability of success even without participation in the program. It is possible that the success of the program is due to the services it provides; however, it is also possible that the program may only select and **serve** individuals who have characteristics (e.g. motivation, work experience, skills) that enable them to be easily placed. Ray Sakalas, Director of the Vocational Rehabilitation Department for the Rehabilitation Institute of Chicago, commented that the criteria for selecting individuals to become clients of a program have become more rigorous due to the Rehabilitation Services Administration's increased tendency to allocate funding for programs on their ability to place clients into employment. The result is that programs may select only those individuals who have characteristics that make them easy to place, and not accept individuals who are more difficult to place.
- Programs define the terms "success" and "placement" differently. For example, some programs only consider a person placed if he/she remains in a competitive position for at least 60 days, while others may consider a person placed if they hold any job for at least one day.
- Programs differ on which clients are included in computing the placement rate. Some programs may compute the placement rate for all clients who participate in the program, but others may include only clients who were interested in obtaining a job.
- Programs focusing on workers' compensation determine success by how the case was resolved, not necessarily by how many clients were placed into employment.
- Programs differ in their objectives and the services they offer. For example, programs that have job placement as their primary goal only provide services that are focused on placing their clients into employment. Their success in placing clients, then, may be higher than other programs that include job placement as only one of several goals of the program, and therefore only devote some of their resources to placing clients.

2. Areas for Future Research

When conducting a limited number of case studies, it is impossible to answer all or even most of **the** questions of interest, and often the research suggests as many new areas for research as it answers. Areas where we believe additional research would be useful include the following:

- **Research to better distinguish between outcomes due to the program interventions and outcomes due to the enrollment of participants with varying levels of skill and motivation.** As is well known, there is a wide range of capabilities in the population with disabilities, and some of the variation in **success** that we have observed in our case studies undoubtedly results from differences in selection procedures rather than differences in program effectiveness. A rigorous evaluation could address this problem, known in the literature as “selection bias,” by using statistical techniques to adjust for differences in characteristics in participants in various programs or (less likely) by using an experimental design where the assistance received is determined randomly.
- **Identifying the importance of particular program components.** The programs included in our case studies were selected in part based on their provision of a comprehensive range of services. Given the bleak outlook for support for even the worthiest of programs, it would be useful to explore how various components contribute to the success of the programs. In particular, it would be useful to know how important it is to provide comprehensive and individualized services rather than more standardized services. **It** is also important to learn what the difference in costs is for more comprehensive, personalized services. Two specific components that appear **promising** should also be investigated further—contracts with the employer community and continued support after placement in competitive employment. Several of the projects we studied did a substantial amount of employer outreach, and while these programs found it to be very useful, we could not find evaluations substantiating these beliefs. Continued support after placement also was considered **a** key component of several programs, but we could not find evidence to verify the importance of this activity.
- **Research on projects serving individuals with mental retardation, developmental disabilities, and the /earning disabled.** None of the case studies we conducted focused exclusively on these three groups, although several of the programs served people with such disabilities. We are aware of a -substantial literature, including rigorous evaluations, on programs for people with mental retardation, but we are not aware of whether a similar literature exists for those **with** developmental or learning disabilities.
- **How do age and prior work experience affect the efficacy of various programs?** The programs we analyzed **serve** a wide range of participants in terms of age and prior work experience. **It** would be useful to systematically analyze how the effectiveness of programs varies by the age and experience of the populations served. Such a study

might identify possible gaps in the service spectrum and point to areas where new approaches might be helpful.

- **What role do assistive technologies (AT) and personal assistance services (PAS) play in programs that successfully promote employment, and how important is that role?** The availability of support for AT and PAS may be critical to the success of some programs, at least for some clients. It would **also** be useful to know the extent to which such programs take advantage of newly developed technologies for their clients.
- **Formal impact evaluations and cost-benefit analyses of a variety of vocational rehabilitation and employment programs for all promising programs is highly desirable.** A number of programs that appear very promising lack formal impact evaluations, and even fewer have adequate cost data available. To enable comparisons across programs, it is desirable for such evaluations to include documentation of all services and associated costs for participants. To assure credibility, evaluation designs should include random assignment or a strong quasi-experimental design.
- **Evaluations of the effectiveness of small programs, especially those serving 50 or fewer participants at a time.** Some analysts have noted that relatively small programs tend to be more effective than large programs. Such programs are evaluated less frequently than larger programs, but given their promise, efforts should be made to evaluate small programs. Small programs may not themselves provide the full array of services required, and the evaluation should document how services are obtained from other sources.
- **Research on appropriate methods of measuring performance in vocational rehabilitation programs that take into account outcomes, program costs, and participant characteristics.** In recent years there has been increased interest in holding government programs accountable for their expenditures. Experience in developing the performance management system for the Job Training Partnership Act (JTPA) indicates that cost standards can sometimes create incentives to skimp on resources provided and that looking only at outcomes can create incentives for “creaming” among those eligible for services. Research should be conducted to distill the lessons from the performance management systems developed for JTPA, vocational education, and other human service programs so that any performance management system developed for programs for individuals with disabilities provides the appropriate incentives.
- **Research on how people with disabilities obtain their jobs.** The primary goal of employment programs for people with disabilities is to assure that the participants obtain employment once they are job ready. No matter how good a rehabilitation or training program is, the **program will not accomplish the ultimate goal of getting the participant a job** if it lacks a good placement program. At least two types of studies might be useful here. A review of exemplary placement components in training programs for people with disabilities would provide lessons for other programs and examples of particular activities to be undertaken and to be avoided. Another type of study would focus on the experiences of employed individuals with disabilities and determine how they obtained their jobs.

- **Research on the role that the federal employment and training system is playing in training people with disabilities and how that role should be changed.** Further research can be conducted on the extent to which people with disabilities are served by the Job Training Partnership Act (JTPA) and other training programs. The current reporting system provides data on the aggregate number of people with disabilities served, but it provides no information on the nature of their disabilities, the severity of their disabilities, or whether some people who could benefit from such training are turned down. Special surveys would be required to gather such information. In addition, there is a strong possibility that the current employment and training system will be replaced by a different approach, possibly involving block grants to states, vouchers, or other approaches. Research could be conducted on various proposed structures to assure that the needs of people with disabilities are adequately addressed.
- **Research on the role of health insurance in the success of employment and training programs.** Individuals with disabilities have even more need for health insurance than the general population, and fear of losing the health insurance provided by Medicaid or Medicare may be a reason why some disabled people fail to enroll in training programs. Those who do enroll may find it difficult to obtain jobs with health insurance benefits and, as a result, stay out of the labor force. A useful research project would be to document the health insurance coverage obtained by individuals who are placed after completing a training program. The study would document the extent to which participants are offered health insurance in their new jobs, whether the insurance excludes coverage for their disabling condition, and how many program participants were not placed because of their health insurance needs.
- **Research on coordination and integration of services for persons with disabilities.** People with disabilities require a variety of services—health, training, education, rehabilitation, and social services. Such services are offered by a variety of providers who receive funding from the local, state, and federal levels of government as well as the nonprofit and for-profit sectors. Research could be conducted on how well these services are coordinated, to provide examples of models of integration that would be useful for other settings, and to identify changes in laws or regulations that might be desirable.

Exhibit VI.A.I

Summary of Program **Characteristics**, 1994

Program Characteristics	San Francisco Vocational Services	Career Design, Inc.	Thresholds	Rehabilitation Institute of Chicago
Population				
Types of Disabilities	Over 70 percent have a severe disability; visual impairment (15 percent); orthopedic (22 percent); emotional (22 percent)	<u>Private Sector Program (PSP):</u> All have severe mental illness, as defined by the Diagnostic Statistical Manual; most are schizophrenic <u>Worknet:</u> 90 percent were severely disabled; orthopedic (38 percent), mental illness (14 percent), mental retardation (9 percent), visual impairment (7 percent), learning disorder (6 percent), hearing impaired (5 percent)	All have severe mental illness, as defined by the Diagnostic Statistical Manual; most are schizophrenic	All have severe disabilities; brain injury (33 percent), spinal cord injury (19 percent), stroke (9 percent), chronic pain (8 percent), multiple sclerosis and other ailments (28 percent)
Employment Status Prior to Entering Program	58 percent not employed for at least 6 months	<u>Worknet:</u> 90 percent not employed, 10 percent underemployed	95.5 percent not employed, 17.2 percent with no competitive work history	N/A
Number Served	437 ;	<u>PSP:</u> 238; <u>Worknet:</u> 8	2,803, of whom 591 were new clients	Vocational Rehabilitation Department (VRD) of RIC serves approximately 700 each year
Placement Rate	87 percent of those in the job placement program were placed into full-time competitive employment (100 of 114); this amounts to 23 percent of all clients (100 of 437)	<u>PSP:</u> 30 percent return to work, 25 percent settled, 18 percent closed at carrier's request, 7 percent released to work, 5 percent closed for medical reasons; <u>Worknet:</u> 64 percent successfully placed into competitive employment for at least 60 days	Approximately 50 percent of active day program clients are employed; 34 to 45 percent of day program clients remain employed 6 months after leaving Thresholds	184 clients had placement or training as a goal, of whom 86 percent (159 of 184) were placed into employment or training (107 in employment, 17 in college, 12 in business or trade schools, 11 in internships, 9 in workshops, 3 in high school)
Average Weekly Earnings for Those Placed: Prior to Entry / After Placement	\$10.20 / \$311.59	\$16.38 / \$216.32	N/A	N/A

Exhibit VI.A.1 (cont.)

Summary of Program Characteristics, 1994

Program Characteristics	San Francisco Vocational Services	Career Design, Inc.	Thresholds	Rehabilitation Institute of Chicago
Vocational Services				
Evaluation / Assessment	Intensive, variety of assessment techniques	<u>PSP</u> : wide variety of psycho-vocational assessments; <u>Worknet</u> : general assessment, assessment of work readiness	Vocational assessments	Initial case consultation, diagnostic evaluation (extensive, wide variety of vocational assessments)
Training	English as a Second Language, Basic Skills, Business Office Occupations, Transitional Employment, On-the-Job (client works at an employer site to learn skills)	<u>Worknet</u> : On-the-Job (Client works at an employer site to learn skills)	Vocational crew (at Thresholds), group placement (at employer site under Thresholds staff supervision), individual placement (at employer site under supervision of employer); there is no time limits for these placements	Work trial assessment, internship training program, skill acquisition program
Placement Activities	Job search training, post-hire follow-up	<u>PSP</u> : job search training, employment opportunity information, wage surveys; <u>Worknet</u> : job search training, referrals to employers, labor market research, post-hire follow-up, job development	Job search training, job development, Mobile Job Support Worker to assist clients while they are at their job	Job seeking skills training, individualized placement attention, on-the-job coaching, site accessibility evaluations, labor market surveys, post-employment follow-up, job information and referrals through RIC/Business TEAM Committee

**Exhibit VI.A.1 (cont.)
Summary of Program Characteristics, 1994**

Program Characteristics	San Francisco Vocational Services	Career Design, Inc.	Thresholds	Rehabilitation Institute of Chicago
Other	Employer Advisory Committee reviews skills training and ensures that clients are getting appropriate training	PSP: case management (including medical management, labor market surveys, expert testimony, career counseling) for resolution of workers compensation, health, catastrophic, and long-term disability claims; Worknet: Executive Advisory Board targets job openings, holds job fairs, develops marketing material, and establishes connections to business community	Supported Competitive Employment program for mentally ill young adults (includes vocational crew, group placement and individual placement without a time limit, job search training, and ongoing support), variety of other programs (social, educational, prevention of rehospitalization, independent living, physical health and well-being)	RIC/Business TEAM Committee facilitates the hiring of persons with disabilities by helping develop marketable skills training programs, placing individuals into employment or internships, solicits membership among area businesses
Average Length of Time in Service	Vocational Evaluation--3 days; Business Office Training--18 weeks; Job Placement -- 4 months; Transitional Employment -- 4 to 9 months; On-the-Job -- 1 to 3 months	N/A	N/A	N/A
Primary Referral Sources	State Department of Rehabilitation (SDR) (83 percent); private insurance (8 percent)	PSP: workers' compensation (99 percent); Worknet: SDR (40 percent), various outside agencies (e.g. Veterans' Administration (VA), special education programs, mental health organizations)	SDR, hospitals, schools, residential rehabilitation facilities	SDR, workers' compensation and personal injury insurers , physicians
Primary Funding Sources	Job Training Partnership Act (JTPA), Projects With Industry (PWI), Visually Impaired Services Contract some third party fee-for-service (SDR, VA, workers' compensation)	PSP: workers' compensation (99 percent); Worknet: PWI grant (78 percent), in-kind contributions (16 percent), CDI (8 percent)	Most from SDR, and some from various state and local grants	SDR (40-50 percent), workers' compensation (approximately 15 percent), VRD's free care fund (15-20 percent), some funding for research programs by various grants
Keys to Success (as noted by program administrators)	Comprehensive , individualized services ; extensive, thorough vocational evaluation process	High involvement with the business community; partnership with SDR	Array of psychosocial services ; comprehensive, individualized services	Comprehensive, individualized services; quality of services ; quality of VRD staff

B. San Francisco Vocational Services

1. Introduction

San Francisco Vocational Services (SFVS) is a division of Rehabilitation Services of Northern California, Inc. (RSNC), a private, nonprofit, multi-service rehabilitation organization serving vocationally-disabled and industrially-injured workers. RSNC was established in 1950 and **serves** more than 1,300 disabled adults in the Northern California region each year. SFVS focuses on providing a comprehensive range of vocational services to industrially injured and disabled individuals, with the ultimate goal of helping them attain maximum physical, psychological, social, and financial independence.

SFVS served 437 individuals in 1994, with over 70 percent having severe **disabilities**.¹¹³ SFVS has an intensive and thorough vocational evaluation process. The vocational evaluation consists of a wide variety of assessment techniques, including tests of actual work ability and limitations given in a simulated work environment that gives both the client and SFVS staff a clear understanding of the vocational goals, skills, and limitations of the client.

Most of the funding SFVS receives is performance-based, which means that SFVS does not get funding unless it achieves the outcome set by the funding source. The outcome is usually the placement of a specified percentage of enrollees into employment; thus, the ultimate objective of SFVS is to place its clients into full-time, competitive employment. SFVS is successful in placing the clients who enter its job placement program into full-time, competitive employment -- of the 114 participants in the job placement program in 1994, 100 (87 percent) were placed into full-time, competitive employment, and average weekly earnings for these clients increased from \$10.20 before entering the program to \$311.59 after being placed. Of the clients placed, 52 percent had a severe disability, and 58 percent had not been employed for six months or longer. Many clients, however, never enter the job placement program. When including the total number of clients that SFVS **served** in 1994, the percent placed into employment drops to 23 percent (100 placed out of 437 served),

¹¹³ An individual is counted as being served if he/she received at least one day of service from SFVS; clients from the previous time period who are continuing to receive **services** are also counted as being served.

2. Population Served

SFVS served **437** clients in 1994, with over 70 percent having a severe **disability**.¹¹⁴ **SFVS** uses the State Department of Rehabilitation's criteria to define severe disability. The criteria are:

- impact level of disability in 10 functional capacity areas, such as cognitive ability, mobility, work ability, ability to speak, and work **tolerance**;¹¹⁵
- receiving Supplemental Security Income (SSI) or Social Security Disability Insurance **(DI)**;
- number of vocational services required;
- length of time needed for vocational services; and
- number of impacts of functional capacity, where the individual must have at least one serious impact and the need for multiple vocational services for six months or more.

In addition, an individual cannot be determined to be severely disabled if his/her disability is temporary.

The most common disabilities for the clients of SFVS were visual impairment (15 percent), orthopedic disability (22 percent), and emotional disability (22 percent). Clients of all working ages were served: 13 percent were age 18-25, 29 percent were age 28-35, 28 percent were age 36-45, and 20 percent were age 46-55. Twenty-seven percent of the clients had graduated from high school (or the equivalent), 35 percent had completed some college, and 13 percent were college graduates. SFVS had a high percentage of minority clients: 22 percent were Black, 12 percent were Asian, and 8 percent were Hispanic. Forty-four percent of the clients were male and 56 percent were female.

3. Services Provided

The primary goal of SFVS is to place people with disabilities into competitive employment by focusing on vocational rehabilitation. SFVS consists of six programs:

- Vocational Evaluation;

¹¹⁴ Time period is March 1, 1994 to March 2, 1995.

¹¹⁵ Level of impact on functional capacity is rated from 0 to 5, with 5 being the highest level of impact.

- English-as-a-Second-Language (ESL) / Basic Skills Remediation (BSR);
- Business Office Occupations Training (**BOOT**);
- Job Placement;
- Transitional **Employment** Program (**TEP**); and
- **On-the-Job** Training (**OJT**).

These programs **offer** a comprehensive range of vocational services that can be used in conjunction with **each** other. For example, an individual may enter SFVS and **undergo** the vocational evaluation. **The** results of **the** evaluation may indicate that Basic Skills **Remediation** is the most appropriate program. After completing BSR, the client might move on to **OJT** to receive job training, and finally to Job Placement when he/she is prepared to actively search for a job. Thus, SFVS' programs can **be** coordinated with **each** other to **provide the** client with an individually tailored plan to help him/her obtain employment.

In 1994, SFVS **served** 185 in Vocational Evaluation, 35 in **ESL / BSR**, **150** in **BOOT**, 114 in Job Placement, 85 in **TEP**, and 20 in **OJT**. These figures are an approximation, and **include overlap between** the programs.

Vocational Evaluation

A client typically **undergoes** an individually **tailored** vocational evaluation to explore his/her **employment** potential., **The** evaluation **is** an **intensive**, multi-day assessment that examines the client's strengths, interests, and limitations in relation to the duties and requirements of specific jobs. It also helps guide the client to the most appropriate SFVS program, where he/she may engage in further assessments and evaluations specific to the goals of the program.

The evaluation consists of a variety of assessment techniques, including **the** following:

- computer job matching program for transferable skills analysis;
- psychometric tests;
- perceptual **motor** and **dexterity tests**;
- interest, reasoning skills, and achievement tests;

- tests to determine physical strength;
- situational assessments, where a client's skills, limitations, motivation, and work habits are tested in a simulated work environment; and
- continuous client/evaluator interaction.

These assessment techniques determine the client's occupational interests, transferable skills, work tolerance, ability level in specific occupational areas, ability to return to competitive employment, and realistic employment options.

Following the evaluation, the results are discussed with both the client and other concerned parties, such as family members, evaluators, potential training programs, and business contacts, to determine what type of treatment plan is most suitable for the client. In addition SFVS makes recommendations regarding the client's potential to engage in competitive employment and the services the client may need to achieve his/her vocational goals.

English-as-a-Second Language (ESL) / Basic Skills Remediation (BSR)

The ESL / BSR program is primarily for clients who need to establish a language or academic groundwork before being able to engage in any vocational training or job placement. ESL provides an individually tailored language development program for clients whose native language is not English. Instruction focuses on pronunciation, vocabulary, idioms, syntax, and grammar. BSR focuses on removing academic barriers to vocational success by providing intensive, individualized tutoring in math and language skills. Both ESL and BSR have a low student-to-teacher ratio, approximately **3:1**, and an open-entry / open-exit policy, which allows clients to enter or leave the program at various times, depending on their individual plans or schedules. In addition, SFVS is the first organization in its area to combine the instruction for ESL and BSR to train minorities for whom English is a second language. With the high number of ethnic minorities in the area, this specialized instruction is in high demand and has proven to be both effective and well used.

Business Office Occupations Training (BOOT)

SFVS offers BOOT as a job-skills training and placement program for persons of employable age (over 18) who have disabilities or injuries and whose goal is competitive employment. BOOT provides specialized training in five approved job areas:

- Secretary/Word Processor;
- Records Clerk/Data Entry Clerk;
- General Office Assistant;
- General Accounting Clerk; and
- Customer Service.¹¹⁶

The program also offers training in core, basic business-related skills such as math, English, and software usage, as well as in employment preparation training.” Clients in BOOT have access to modern office and computer equipment as well as specially adapted equipment and services. In addition, similar to ESL / BSR, BOOT has an open-entry / open-exit policy and a low student-to-teacher ratio (approximately 8:1).

Upon beginning participation in BOOT, a client is assigned a vocational counselor to help him/her for the duration of the program. The client is then evaluated in a variety of diagnostic and learning situations to assess interest, aptitude, and skill level as well as work habits, attitude, motivation, punctuality, quality of work, and physical functioning. Following the evaluation, the client meets with his/her referring counselor, vocational counselor, and instructor to discuss the appropriateness of participation in the training program and to develop a plan of study (if training is determined to be appropriate). In developing the plan of study, the client’s past experience, current skills, and learning ability are taken into account to determine what course curriculum is best suited to the client and the amount of time that is necessary for the client to complete the program. The average amount of time a client spends in BOOT is 18 weeks. Throughout the client’s participation in the program, he/she meets

¹¹⁶ SFVS was granted institutional approval from the Council for Private Postsecondary and Vocational Education. The Council’s approval means that the institution complies with the standards established under the law for occupational instruction by private postsecondary educational institutions.

¹¹⁷ Employment preparation includes training in interviewing and job search techniques.

monthly with his/her referring counselor, vocational counselor, and instructor to discuss progress in meeting goals as well as any specific problems or achievements. When the individual nears the end of training, he/she is assigned a job placement counselor who helps with the job search.

Job Placement

SFVS offers comprehensive job placement **services** to accommodate the specific needs of its clients. Services include training in resume writing, interviewing, and job search methods. Clients receive **step-by-step** support and instruction throughout the entire job search process, as well as follow-up support after the client obtains a job, which helps increase job retention. SFVS also provides job postings and employer information to clients. In addition, SFVS has an Employer Advisory Committee, composed of over 60 employers in the San Francisco area, that reviews the skills training programs and ensures that the programs help clients develop competitive job skills. **Clients** typically remain in the job placement program for approximately four months. Individuals in the program who are not placed into employment within a year -- perhaps as a result of noncooperation or having too severe a disability -- have their SFVS services terminated.¹¹⁸

All of the clients that SFVS places into employment participate in the job placement program. However, there are some individuals who are in SFVS programs but who do not participate in the job placement program. These people may choose to receive their placement services from another source. For example, an individual may participate in one of SFVS' programs, but obtain placement services from his/her referring source. In addition, individuals may participate in SFVS programs for specific training or evaluation and not request placement services.

Transitional Employment

SFVS has two Transitional Employment Programs (**TEP I** and **TEP II**), both of which offer paid, temporary work experience in a structured environment.¹¹⁹ These programs are

¹¹⁸ Termination of services is done in cooperation with an individual's referring counselor.

¹¹⁹ TEP is located at the State Compensation insurance Fund, a workers' compensation company, which has a contract with SFVS to provide TEP training services.

primarily intended for clients with little or no work experience, TEP I offers a variety of tasks in a clerical setting, including data entry, clerical support, hard copy retrieval, and back-up payroll review. Participants engage in the program 20 hours a week for four to six months. TEP II offers repetitive tasks in a production environment, including envelope sorting, mail opening, and payroll batching. Clients engage in TEP II either 32 hours a week for five to nine months, or 40 hours a week for nine months. Both TEP I and TEP II enable participants to develop competitive work habits, address behaviors that might have interfered with productive employment in the past, and build self-esteem. Both programs teach and reinforce productive work habits such as attendance, productivity, following instructions, and appropriate work-related interactions. TEP participants are trained and supervised by SFVS staff who work on-site at the host employer's location.

On-the-Job Training (OJT)

OJT is a one-to-three-month program that offers participants individually tailored, paid work and job skills training through individual employer agreements. As an incentive to hire SFVS clients, employers are reimbursed for 50 percent of the cost of wages for a specified time period (one to three months).¹²⁰ The time period is determined by the OJT Coordinator based on an estimate of how long it will take the client to learn and perform 100 percent of the job duties. Thus, OJT both directly helps persons with disabilities participate in gainful employment and, simultaneously, provides benefits to companies by allowing them to train a motivated employee at half the usual cost.

4. Referrals and Funding

All SFVS clients are fully funded, so clients do not have any out-of-pocket fees. The vast majority of prospective clients are referred to SFVS by the State Department of Rehabilitation (83 percent) or by private insurance (8 percent). Most clients are referred to SFVS for pre-BOOT assessment (41 percent), pre-TEP assessment (22 percent), direct placement (12 percent), or vocational evaluation (12 percent). Referral agencies typically contact SFVS or BOOT staff to discuss the prospective client's background and goals. The

¹²⁰ The Private Industry Council is the local administrative agent of the federal Job Training Partnership Act (JTPA) and acts as the funding source of OJT.

prospective client is then given an orientation tour of **SFVS's** facilities. Following this, SFVS notifies the client and the referral agency of openings in the program and the client's start date.

Most of the funding that SFVS receives is performance-based -- only five percent of its funding is private (e.g. endowments). This means that SNS is paid only if it is able to produce satisfactory outcomes. The three major sources of funding that are performance-based are the Job Training Partnership Act (JTPA), Projects With Industry (PWI), and the Visually Impaired Services Contract (**VISC**). These **sources** have placement goals, usually a percentage of those enrolled in SFVS, that must be fulfilled before SFVS can be funded. The San Francisco Private Industry Council (PIC) receives federal JTPA funds to serve qualified, low-income San Francisco residents with disabilities. VISC, sponsored by the State Department of Rehabilitation, provides vocational assessment, training, and placement services to people who are blind or visually impaired. PWI, sponsored by the Office of Special Education and Rehabilitation Services, U.S. Department of Education, provides a grant to help support SFVS job placement services, which include networking to businesses for expert vocational training and job-openings information.

Some of the funding SFVS receives is based on third party fee-for-service contracts that are sponsored by a variety of sources, such as Workers' Compensation, the State Department of Rehabilitation, and the Veterans' Administration. These sponsors refer individuals to SFVS and fund the **services** they receive on a fee-for-service basis. In addition, the ESL / BSR program is subsidized by contributions from the San Francisco Foundation, and contributions from the United Way subsidize case management services.

5. Evidence of Success

The ultimate measure of success for SFVS is placement of its clients into employment. SFVS defines placement as obtaining a full-time, competitive job for **60 days or more**.¹²¹ In 1994, of the 114 clients in the placement program, 87 percent were placed into employment. Of those clients that were placed, 52 percent had severe disabilities and 58 percent had not **been** employed for six months or more prior to entering the program. In addition, average earnings per week for placed participants increased dramatically **from before** participation in

¹²¹ SFVS does not engage in supported employment.

the program (\$10.20) to after employment (\$311.59). These post-employment earnings are equivalent to \$7.79 per hour based on a 40 hour work week. Thus, it appears that SFVS is helping a significant share of its clients obtain employment, and at high wage rates that are well the above minimum wage. The average cost per placement for the program is \$1,838, which is less than half of the PWI average (\$3,886).

The total annualized public assistance (e.g. AFDC, SSI, and **SSDI** benefits) received by the 100 placed clients before beginning the program was \$319,068, and the estimated annual income of all placed clients after the program totals **\$1,501,480**. Although it is possible that some of the individuals who were placed still received public assistance after their placement, the vast majority most likely did not, given the high average earnings of those placed. Thus, it appears that not only did the placed clients benefit from the increase in their income, but taxpayers also benefited by the decrease in costs to support these individuals.

6. Conclusion

Craig King, Executive Director of SFVS, attributes the program's success in placing its clients into employment to the evaluation process, the comprehensive range of **services** it offers, and the individual support each client receives. Both the general vocational evaluation and the evaluations specific to each program are extremely thorough. Individuals are assessed with a wide variety of tests, and their actual ability and motivation to work are evaluated in a simulated work environment. The result of these intensive evaluations is a deeper understanding, by both the client and the SFVS staff, of the abilities, limitations, and interests of the client. This allows the client, with the help of the SFVS staff, to develop a vocational plan that is more likely to be successful in meeting the specific needs and goals of the client.

Along with its thorough evaluation process, SFVS offers a comprehensive range of services that can be coordinated to fit the specific goals of a client. Clients with varying degrees and **types of** disabilities are provided services that meet their particular needs and goals. In addition, SFVS provides individual support and attention for participants throughout the development and fulfillment of their vocational goals, including the follow-up after a participant is placed, which **contributes** to increased job retention. SFVS staff members also work together to coordinate resources and services to help clients achieve their vocational

goals. Mr. King commented that another possible reason for the success SFVS has in placing participants is that SFVS typically does not serve individuals with developmental disabilities since it does not have a program to meet the needs of those individuals. Thus, most of the clients SFVS serves are of average intelligence and are more likely to be successfully trained and placed into employment.

Although SFVS does an excellent job of placing its clients into employment, this success is mainly for those clients who are in the job placement program. It is not possible to tell from the data available, however, how much of this apparent success is due to the special characteristics of those who became employed versus the impact of the program on their employment. When all SFVS clients are considered, not just those in the job placement program, only 23 percent enter employment (100 of 437). There are several explanations that may account for this. One possible explanation is that a significant part of the success of the job placement program is because only clients with a high probability of success participate in it; otherwise, more clients would participate in the program. Another possible explanation is that clients may participate in SFVS programs only for specific training or assessment needs, and then either choose to receive placement services from other sources, job search on their own, or completely forgo a job search; thus, clients that receive non-placement services from SFVS might enter the labor force through alternate means.

C. Career Design, Inc.

1. Introduction

Career Design, Inc. (CDI), established in 1980 in Omaha, Nebraska, is a for-profit, private company that specializes in rehabilitation services, career management, and human resources consulting. CDI has a private sector program (PSP) and a public sector program (Worknet). PSP provides vocational rehabilitation and case management services for persons who **have** been injured on the job, mainly workers' compensation cases. **Worknet** focuses solely on providing job search skills training and job placement **for individuals with disabilities** who are ready to work. CDI also provides various vocational and training services for individuals without disabilities as well as for area employers.

PSP served 238 clients in 1994, almost all of whom were workers' compensation cases funded by private insurers (over 99 percent).¹²² PSP successfully closed 82 percent of these cases: 30 percent returned to work, 25 percent were settled, meaning that the client had maximum medical improvement and received a lump sum payment to close the case, and 7 percent were released to work. The other cases were either closed at the carrier's request (18 percent), meaning that the insurance company closed the case for some reason, closed for medical reasons (5 percent), meaning that the client was unable to work for medical reasons or required long-term recovery, or closed in some other manner (15 percent). The vast majority of PSP clients had musculoskeletal injuries (91 percent). **Worknet** served 408 individuals in 1994, with over 80 percent having severe disabilities. Of these, 241 (59 percent) were successfully placed into an initial job, and 20 more were successfully placed into a second job after termination from their initial job, **Worknet** services are provided at no cost to clients, employers, or rehabilitation agencies.

Worknet is primarily funded by a Projects-With-Industry (PWI) grant from the U.S. Department of Education (76 percent of total funding in 1994). The PWI grant is performance-based, which means that **Worknet** must meet certain standards of performance to receive funding. Standards include the number of severely disabled clients served, the number of clients placed, and the cost per placement.

Worknet has a close partnership with the State Rehabilitation Agency (SRA). **Worknet** and the SRA work together to provide a comprehensive range of vocational services to persons with disabilities, from assessment of disability and vocational training provided by the SRA to job search skills training and job placement services provided by **Worknet**. In addition, **Worknet** is highly involved in the community, having numerous ties with area businesses and employers, who donate their time and resources to assist **Worknet** in achieving its goals. This helps **Worknet** to be perceived as being business minded and business directed, so that the clients it refers to employers are more likely to be seen as qualified workers who have disabilities rather than rehabilitation clients who are being "pushed off onto employers.

¹²² Time period is Fiscal Year 1994 -- October 1, 1993 to September 30, 1994.

2. Population Sewed

Career Design, Inc. (CDI) served 238 people in its private sector program (PSP) in FY 1994. More than 99 percent of these clients were injured at their job and were referred and funded by private insurance companies, typically by workers' compensation. Fifty percent of the individuals served by PSP had back injuries (e.g. spinal cord injuries, disc injuries), 28 percent had upper extremity injuries (mostly soft-tissue injuries, such as shoulder, elbow, cartilage, carpal tunnel syndrome), 13 percent had lower extremity injuries (e.g. joint, hip problems), and 9 percent had various other injuries (e.g. burns, inhaled fumes). Clients, on average, spent 9.8 months in PSP.

Forty-eight percent of the clients in PSP were male, and 52 percent were female. The average age for PSP clients was 40 years -- 39 years for males and 40 years for females. Sixty-nine percent were married, 18 percent were single, and 13 percent were divorced. Most of the clients were Caucasian (88 percent), and some were Hispanic (8 percent) or African-American (4 percent).

CDI served 408 persons in its **Worknet** program in 1994, of whom 82 percent were severely disabled. **Worknet** uses the Federal Department of Rehabilitation's criteria to define severe disability. The criteria are as follow:

- Individual is receiving **SSI** or DI;
- Individual has a severe physical or mental impairment that limits one or more functional capacities (mobility, communication, interpersonal skills, self-care, self-direction, work tolerance, or work skills) relating to employment outcome;
- Individual requires multiple vocational rehabilitation services over an extended period of **time; or**
- Individual has one or more physical or mental disabilities that, based on an assessment for determining eligibility and vocational rehabilitation needs, causes comparable substantial functional limitations.

Worknet placed 59 percent (241 of 408) of its clients into competitive **employment**.¹²³ Clients were placed into one of four occupational categories: service (28 percent), technical /

¹²³ **Worknet** only places clients into competitive employment. It does not make placements in supported employment.

trade (22 percent), clerical / administrative (32 percent), or professional (18 percent). CDI **served** clients with a wide range of disabilities, the most common being orthopedic (38 percent), mental illness (14 percent), mental retardation (9 percent), visual impairment (7 percent), learning disorder (8 percent), and hearing impaired (5 percent). **Worknet** served an equal number of men and women, and of those placed, 51 percent were men and 49 percent were women. The vast majority of the **Worknet** clients were Caucasian (92.6 percent), and some were African American (4.4 percent) and Hispanic (2.0 percent). Ninety-five percent of those placed were Caucasian, four percent were African American, and one percent were Hispanic.

3. **Services Provided**

In addition to the services it provides to individuals with disabilities, CDI also provides services for individuals without disabilities, including psycho-vocational testing, outplacement, spouse/partner relocation assistance, and individualized career counseling, as well as professional training and consulting of employee skills and knowledge for employers. For the purposes of this report, though, we will focus on the services provided to persons with disabilities.

a. **Private Sector Program (PSP)**

PSP primarily serves individuals who have been injured on the job -- mainly workers' compensation cases. The goal of PSP is to assist the client in achieving medical recovery as quickly and inexpensively (to the insurer) as possible. Following medical recovery, the priority of PSP is to return clients to work.

PSP has a priority schedule for returning clients to work. PSP first tries to have the client return to the same job with the same employer. If this is not possible, then PSP attempts to have the client work with the same employer, but in a modified or different job. If both of these are not possible, then the client works with a PSP vocational counselor to receive job placement services, such as job seeking skills training, job leads, and job information. Afterwards, PSP attempts to place the client into the same type of job that he/she had before, but with a different employer. If this is not successful, PSP attempts to place the client into a different job with a different employer. If none of these are possible, as the last resort, the

client engages in long-term training, which may include academic training (e.g. community college) or specific vocational training.

PSP consists of three programs for injured clients:

- Rehabilitation Case Management;
- Vocational Evaluation; and
- Job Placement.

There is some overlap in the services offered among the programs, and programs may be used in conjunction with each other. PSP also offers a program, Americans with Disabilities Act -- Compliance Audits and Training, for employers who have workers with disabilities.

Rehabilitation Case Management (RCM)

An interdisciplinary case management team at CDI assists clients in the management and resolution of workers' compensation, health, long-term disability, and catastrophic claims. RCM offers a wide range of services to assist clients throughout the entire claims resolution process. Services include the following:

- Case Review;
- Medical Management;
- Job Analysis and Modification;
- Job Placement;
- Labor Market Surveys;
- Vocational Testing and Rehabilitation;
- Transferable Skills Analysis;
- Career Counseling;
- Expert Testimony; and
- Coordination of medical examinations, reconditioning therapy, work hardening, and pain management.

Vocational Evaluation

Certified vocational evaluation professionals administer a wide variety of **psycho-**vocational tests that are used both individually and in conjunction with each other to meet the vocational evaluation needs of the referral source. These tests measure personality traits, vocational interests, and skills. In addition, PSP offers “packages” that provide specific vocational evaluation services. Similar to the psycho-vocational tests, these packages can be modified or combined to meet the individual needs of the client. The following is a list of several of the packages offered:

- **Preliminary Assessment Package (PAP)** -- This is a preliminary screening package that provides the case manager with basic information about the client’s academic skills, intellectual capabilities, and personality characteristics;
- **Vocational Interests Package (VIP)** -- This package consists of three vocational interest tests and provides an interest profile showing the areas where the individual would most likely find the greatest and least job satisfaction. This package is recommended as the initial step in career exploration or planning;
- **Vocational Aptitude Package (VAP)** -- This is a customized package that assesses an individual’s general and specific aptitudes in one or more specific areas of interest, and it is a prerequisite to the development of further training, education, or placement plans;
- **Vocational Evaluation Package (VEP)** -- This is a typical combination package, where vocational interest and aptitude tests are conducted to identify an occupational area that best fits the interests and aptitudes of the client;
- **Transferable Skills Analysis (TSA)** -- This package is designed for injured workers who have attained maximum medical improvement, but are unable to return to their previous job due to physical restrictions. The analysis considers the individual’s work history, acquired skills, aptitudes, and functional capacities to identify occupational areas in which the individual has the highest probability of obtaining compatible employment with a minimum of additional training;
- **Loss of Earning Capacity (LOE)** -- This package expands on TSA by determining the degree to which an injured worker has lost access to the labor market and the reduction (if any) in his/her wage potential;
- **Psycho-Vocational Analysis (PVA)** -- This is a full package that includes all of the above-mentioned packages, in addition to assessing the client’s motivation and credibility. This package includes a file review, a client interview, and an extensive analytical report.

Other vocational evaluation services that PSP offers are labor market surveys, career counseling, symptom magnification assessment (to assess the likelihood of workers' compensation fraud), and testing /work sampling.

Job Placement

PSP offers a variety of services to assist clients in obtaining employment. Job placement services include the following:

- Employment opportunity information;
- Wage surveys;
- Job search strategies;
- Resume preparation;
- Employer contact techniques;
- Interviewing skills;
- Job leads; and
- Job information.

In addition, PSP offers on-the-job training, where a client is put into an actual work setting and engages in paid work in order to learn a skill.

Americans with Disabilities Act (ADA) – Compliance Audits and Training

CDI reviews and makes recommendations to business, government, and public entities on meeting minimum compliance standards of the ADA. Some issues that CDI addresses include:

- Policies **and** safeguards.. against discrimination, which include recruiting, hiring, promotions, compensation, benefits, and terminations;
- Job Analysis /Job Descriptions / Essential Functions;
- Disability Management / Risk Management/Workers' Compensation;
- Accessibility; and
- Public Relations.

b. Worknet – Public Sector Program

Worknet was developed under a Projects With Industry (PWI) grant awarded to CDI by the Rehabilitation Services Administration of the U.S. Department of Education. The goal of **Worknet** is to facilitate and develop employment opportunities for people with disabilities through partnerships with businesses, industries, and rehabilitation agencies. Persons are eligible for **Worknet** if they are ready and qualified to work, have a disability, and seek competitive employment.

In order to qualify for **Worknet**, an individual must first undergo an intake interview, which is a screening process to ensure that candidates have a disability and are job-ready (e.g. trained or experienced in specific job requirements) before they are referred to employers. CDI, though, does not assess an individual's disability or job-readiness: rather, CDI has the State rehabilitation agency (SRA) assess the disability and work-readiness of an individual before he/she enters **Worknet**. Thus, individuals who are sent by the SRA are automatically qualified for **Worknet** since the SRA, as a part of its rehabilitation program, has already assessed their disability, given them vocational and skills training, and evaluated their ability to work. In addition, individuals interested in **Worknet** who do not initially come from the SRA are sent by CDI to the SRA for assessment of their disability and job-readiness.

Worknet specializes in job placement services for qualified applicants. These services include:

- Intake/General assessment;
- Job development and placement assistance;
- Employment counseling;
- Job Club /Job seeking skills training;
- Job modification consultation;
- Referrals to rehabilitation and community service organizations for services and training;
- Job leads and referrals to employers;
- Contacting employers on participant's behalf;

- On-the-job training -- clients are put into an actual work setting and engage in paid work in order to learn a skill;
- Labor market research and job development; and
- Post-hire follow-up and consultation -- There are at least 60 days of follow-up for a placed client, including one-on-one discussions with both supervisor and client.

In addition, **Worknet** provides information to employers on hiring and accommodating people with disabilities, as well as assistance in the purchase of essential equipment and tools for the job. All **Worknet** services are funded by the PWI grant, and services are provided at no cost to job seekers, employers, or rehabilitation agencies. Although there is no time limit for **Worknet**, if a client is not able to be placed due to a skills deficit, he/she is referred back to the SRA for further vocational training. In 1994, clients remained in **Worknet** for an average of three to four months.

Worknet has developed close relationships with numerous businesses and companies, and uses these relationships to help place clients. The area employers become partners in the job placement process and donate their time and resources towards helping **Worknet** succeed.¹²⁴ Some of these efforts include providing information on specific job requirements, helping define the training needs of applicants, and interviewing and hiring qualified applicants referred by **Worknet**. Typically, **Worknet** receives job orders from area businesses and matches them with applications from individuals. It then refers qualified applicants to potential employers.

Worknet has two Executive Advisory Boards (one in Omaha and one in Lincoln) that provide guidance to **Worknet** staff. Advisory Board members are drawn from participating companies and community agencies, including the State Rehabilitation Agency, that represent many of the area's major employers. Each Executive Advisory Board (EAB) consists of three committees:

- **Employment Committee** -- This committee helps target specific job openings and holds annual job fairs;

¹²⁴ CDI makes businesses "partners" as a way of encouraging their commitment and involvement in **Worknet**.

- Awareness **Committee** -- This committee develops marketing literature and related material to create higher public awareness; and
- **Award Committee** -- This committee formally recognizes employers who have made significant contributions to Worknet's success.

The committees are each composed of human resource professionals and rehabilitation experts.

4. Referrals and Funding

Over 99 percent of the clients in **CDI's** private sector program are referred and funded by workers' compensation. Private insurers hire CDI to represent their claimant and CDI bills its PSP services out at **\$62/hour**. Average billings per case in 1994 were **\$3,176.20**. In addition, about 20 percent of PSP clients participate in **Worknet**. In these cases, **Worknet** funds the development of a vocational plan, but workers' compensation pays for the actual training and services.

Approximately 40 percent of **Worknet** clients are referred by the SRA; the other 60 percent are referred by various outside agencies (e.g. Veterans' Administration, public school special education programs, and community mental health organizations) or come to **Worknet** through word of mouth or advertising. All clients, though, have had contact with the SPA in order to be assessed for their disability and ability to work.

All **Worknet** clients are provided services at no cost. **Worknet** is primarily funded by a PWI grant from the U.S. Department of Education (76 percent of total funding in 1994). CDI is also required to have at least a 20 percent funding match to the PWI grant, which it meets through in-kind contributions from area businesses (16 percent of total funding) and contributions from CDI (8 percent of total **funding**).¹²⁵ **Worknet's** PWI grant is **performance-based**, meaning that the program must achieve certain standards in order to receive funding. Some examples of these standards are that at least 70 percent of clients must be severely disabled, at least **200** clients must be placed a year, and the cost per placement must be under \$1,800.

¹²⁵ **CDI** funds some **Worknet** expenses with profits from PSP. Jerry **Dyksterhuis** commented that this allows CDI to offer **Worknet** services to private insurers, who then view the organization more favorably and are willing to make more referrals to CDI.

5. Evidence of Success

The measure of success for PSP is its ability to close cases with desirable results, meaning that the client returns to work, reaches a settlement, or is released to work. Of the 238 clients served in 1994, 30 percent returned to work, 25 percent were settled (person had maximum medical improvement and took a lump sum payment for the injury), 18 percent were closed at the carrier's request (insurance company closed case for some reason, e.g. fraud, unhappy with services), 7 percent were released to work (physician stated that person was able to work, but he/she chose not to), 5 percent were closed for medical reasons (person was unable to work due to medical condition, person required long-term recovery), and 15 percent were closed for various other reasons.¹²⁶ Thus, 62 percent of **PSP's** cases were resolved in a desirable manner.

Worknet defines successful placement as obtaining competitive employment for 60 days or longer. In 1994, **Worknet** served 408 individuals, of whom 306 were hired.¹²⁷ Of the 306 who were hired, 241 were successfully placed into employment (59 percent of the total served).¹²⁸ Of the 65 who were hired but not successfully placed (their employment was terminated within 60 days), 20 were successfully placed by **Worknet** into another job, and 16 were still active in **Worknet**. Thus, 64 percent (261 of 408) of the clients served by **Worknet** were successfully placed.

Eighty-two percent of the clients served by **Worknet** had severe disabilities, and 81 percent of the clients placed (195 of 241) had severe disabilities. Ninety percent of the clients placed were not employed at the time of their project entry, and 10 percent were underemployed at project entry.¹²⁹ Of the clients placed, 37 percent had not been employed for six months or more before entering the project. Average earnings per week at entry into the program was \$16.38, and average earnings per week at closure was \$216.32. The

¹²⁶ Almost all the clients served by PSP are workers' compensation cases, so the results of PSP services refer to the closure status of the case.

¹²⁷ An individual is determined to be hired if he/she initially obtains employment; however, in order for a hired individual to be determined to be successfully placed, he/she must remain in competitive employment for 60 days or longer.

¹²⁸ Successful placement means the individual was placed into competitive employment and remained there for at least 60 days.

¹²⁹ Underemployed means that both the client and the case manager agree that the client was working at a level that was lower than he/she was capable of, or at a pay that was lower than he/she should have been receiving e.g. only working part-time when person is capable of working full-time.

average full-time salary was \$13,831, and the average salary (including part-time) was \$11,249. The post-employment earnings for those working full-time are equivalent to \$6.65 per hour based on a 40 hour work week. Thus, it appears that CDI is successfully placing a number of clients who are typically difficult to place (those with severe disabilities and/or have not been employed for six months or longer). The average cost per placement for **Worknet** was \$1,496.

6. Conclusion

Dr. Jerry Dyksterhuis, President of CDI, believes that one of the most distinguishing aspects of **Worknet** is its high involvement with the community. The program, although it is owned and operated by CDI, is perceived as being “employer-owned,” as opposed to being associated with the rehabilitation agency and its goals and procedures. Consequently, **Worknet** is perceived as a work program to recruit qualified workers with disabilities rather than a placement program from the rehabilitation community attempting to “push off” its clients onto the business community. In addition, businesses who are involved with **Worknet** believe that they are responsible for its success; consequently, they donate their time, effort, and resources towards making it work. Also, because of the many employers involved in **Worknet**, referrals by the program are well received by employers, leading to more successful placements.

Worknet began establishing this perception in 1983 by having a respected civic leader chair the EAB and promote **Worknet** as being business minded. This chairman was able to solicit other respected civic leaders to become members of the board, thereby further enhancing the perception of **Worknet**. This process is still used by **Worknet**, where it solicits board chairpersons and members who can provide the leadership to promote the program as a civic minded, business directed, vocational rehabilitation program. Thus, when **Worknet** staff approach area businesses to discuss employment opportunities, they are perceived as representatives of the business community who have a good understanding of the rehabilitation community, and who are able to make a good match of qualified applicants with disabilities to the employment needs of employers. Likewise, when **Worknet** staff works with the SRA, they are recognized as having a good understanding of rehabilitation needs within the context of employment in the business community. In addition, **Worknet** strives to have

well-known and highly regarded civic workers chair its boards so that other businesses will be more likely to support the program.

Dr. Dyksterhuis noted that another distinguishing feature of CDI is its partnership with the SRA. CDI and the SRA view each others as partners in furthering job placement and employer involvement, as opposed to competitors for clients or services. This partnership developed because the SRA believed that it was not closely connected to the business community, and consequently was unable to provide adequate placements once participants completed rehabilitation. Thus, it supported and encouraged Worknet because Worknet emphasized employer development and employer-initiated recruiting of qualified workers with disabilities, and thereby provided the SRA with a strong connection to the private sector.

Currently, Worknet receives referrals of clients from the SRA and then makes its own determination as to the job readiness of the individual, accepting as clients only those individuals that are appropriate for competitive job placement. Job placement by Worknet, then, is the final step in a client's rehabilitation program. In addition, Worknet staff conduct job seeking skills classes for the SRA clients. Also, as mentioned earlier, representatives of the SRA participate in the Employer Advisory Committee, which has given the agency more inroads into the business community. Thus, the partnership between CDI and the SRA is mutually beneficial and results in more comprehensive services for individuals with disabilities.

Worknet focuses exclusively on placing its clients into competitive employment, leaving issues of vocational training and rehabilitation to outside sources, mainly the SRA. Considering that most of the clients served by Worknet had severe disabilities and the large majority were not employed when they first entered, Worknet's placement rate is impressive. In addition, Worknet was able to place these individuals into competitive jobs.

One possible explanation for Worknet's success is that it only takes as clients those individuals with disabilities who are motivated and ready to work. In addition, Worknet does not serve individuals who are "most severely" disabled, meaning an individual who meets the criteria of severe disability and who is seriously limited in four or more of the functional capacities mentioned above. These individuals would tend to have a more difficult time being placed than those with just severe disabilities. Thus, Worknet has some clients who might have been able to obtain employment even without participation in Worknet. Dr. Dyksterhuis

commented, however, that CDI would like to serve individuals who are most severely disabled, but given the performance standards of the PWI grant it would be difficult to include these people and still have outcomes that would comply with the grant's requirements.

Another possible explanation for Worknet's **success** is that because it **does** not engage in any vocational training or skills training, it can focus all of its energy and **resources** on placing its clients. Worknet's success in placement, then, could be attributed to the **amount** of time and resources it devotes to placement, as compared to programs that focus **their** attention on various other services, such as vocational training. Thus, given the sole focus of **Worknet** on job search skills training and job placement, its success in placing clients may not be surprising.

One other **possible** explanation is that **because** CDI has **developed** a strong relationship with the business community, it is able to use this relationship not only as a source of information, funding, and resources, but also as a referral and placement source as well. Clients that **Worknet** refers to area employers might be more likely to be hired given the strong relationship and reputation CDI has with the business community. In addition, employers already involved with **Worknet** may **recommend** Worknet's services and **clients** to other employers.

D. Thresholds, Inc.

1. Introduction

Thresholds is a psychosocial rehabilitation agency that was founded in 1959 in Chicago, Illinois. The agency **serves** persons with **severe** and persistent mental illness. Through a variety of programs and services, including day programs, an assertive community treatment program, a partial hospitalization program, and drop-in centers, Thresholds provides an array of services to help clients meet their **goals**. Thresholds' psychosocial approach to rehabilitation 'emphasizes six major rehabilitative goals: prevention of unnecessary hospitalization (this includes **medication** management and therapy), vocational rehabilitation, education (secondary and postsecondary), social rehabilitation, physical health and well being, and independent living.

Thresholds offers a variety of vocational services as part of a client's overall psychosocial rehabilitation. These services include the following:

- vocational assessment;
- work adjustment;
- job placement;
- social skills training and stress management at work;
- job coaching and mobile job support; and
- liaison with employers and coworkers.

In addition, Thresholds has recently developed a Supportive Competitive Employment Program (SCE) for adults and young adults to assist clients in obtaining and maintaining employment. Components of SCE include the following: a vocational crew, where the client works on a kitchen or maintenance crew at Thresholds to develop general work skills; group placement, where a client works at an employer site under the supervision of Thresholds staff; individual placement, where the client works at an employer site under the **supervision** of the employer's own managers; and independent job placement into the community. SCE also offers ongoing mobile vocational support for clients at the **worksite** or nearby, and does not have a time limit on its group or individual placements, allowing a client to remain in a placement for as long as he/she needs to.

Thresholds served 2,803 persons in Fiscal Year 1994, all of whom had a severe mental illness, mainly **schizophrenia**.¹³⁰ Approximately 800 clients participated in one of the day programs, and 887 received services from one of the assertive community treatment **programs**.¹³¹ Eighty percent of all clients **served** by Thresholds were not hospitalized at any time during FY 1994.

Approximately 80 percent of those receiving job placement and support services in day programs are employed while at Thresholds. These individuals work an average of 80 percent

¹³⁰ Time period is **July 1, 1993** to **June 30, 1994**.

¹³¹ Not all of the participants in day programs received vocational services, and very few of the participants in assertive community treatment programs received vocational services.

of the time while active in Thresholds. Six months following termination from Thresholds, the percent of all participants in day programs who are employed ranges from 34 to 45 percent.

2. Population Served

Thresholds served 2,803 persons in **FY** 1994, of whom 591 were new clients. All clients that Thresholds **serves** are diagnosed with severe mental illness, and some clients have other disabilities as well, such as hearing impairment, physical disabilities, substance use disorder, and developmental **disabilities**.¹³² Thresholds uses the guidelines in the Diagnostic Statistical Manual (DSM) to define severe mental illness. Most participants in programming have schizophrenia. Since most clients have been previously hospitalized for psychiatric reasons, they already have been diagnosed as having a psychiatric disability prior to entering **the** agency.

Of the 591 new clients in **FY** 1994, 58 percent were men and 42 percent were **women**.¹³³ Only 7.2 % of the new clients did not have a hospitalization history, and the average number of previous psychiatric hospitalizations per client was 6.6. The vast majority of new clients were not employed when they entered Thresholds (95.5 percent), and 17.2 percent did not have any competitive work history. The most common source of income for these new clients was **SSI/DI** (62.4 percent), public aid (28.2 percent), none (15.1 percent), or relatives (8.5 percent).

Most of the new clients **were** either Caucasian (46 percent) or African-American (47.4 percent), and some were **Hispanic/Latino** (3.7 percent) or Asian (1.7 percent). The average age at intake was 34.5 years, and the average number of years of education was 11.9. Most of the clients had never been married (72.8 percent), or were divorced (12.7 percent) or separated (8.9 percent). Prior to joining Thresholds, most new clients lived in an institution (29.4 percent), in a relative's home (28.2 percent), in their own or a shared apartment/home (17.2 percent), or in a residential rehabilitation facility (7.1 percent).

¹³² Thresholds does not serve individuals who do not have a primary diagnosis of mental illness.

¹³³ The characteristics of the population in 1994, according to Sally **Urwin**, Director of Program Evaluation at Thresholds, are representative of the entire population served by Thresholds in any given year.

3. Services Provided

Thresholds provides an array of psychosocial rehabilitation services to meet its six major rehabilitative goals. The concept of an array of services stems from the belief that program boundaries should be **permeable**, meaning that clients should be able to move from one set of services to another depending on the needs of their illnesses and career goals at different points in their lives. Services are provided in seven major program areas:

- **Prevention of Unnecessary Hospitalization Programs** -- These **services** include medication management and support, crisis management and deflection, long-term case management, and community integrated living arrangements;
- **Vocational Programs** -- **These** include a variety of supported employment services' such as vocational assessment, work adjustment, job placement, social skills training and stress management at work, and job coaching and mobile job support;
- **Social Programs** -- These **services** include personal and social adjustment, social groups and activities, social club meetings, drop-in centers, and camping;
- **Education Programs** -- These services include adult basic education, high school completion, General Educational Development (GED), and post-secondary preparation and support;
- **Independent Living Programs** -- **These services** include group homes, supervised apartments, supported apartments, and training in activities of daily living;
- **Physical Health and Well Being Programs** -- These services include substance abuse prevention, nutrition and hygiene education, smoking cessation, HIV/AIDS and STD education, and physical exercise; and
- **Special Services/programs** -- These include services for young adults (aged **16-21**), parents with mental illness and their children, family education and support, hearing impaired programs, mobile psychiatric assessment, research, training, consultation, and partial hospitalization programs.

In addition, Thresholds' Assertive Community Treatment Program (ACT) provides basic living skills training, social skills training, and advocacy for individuals who have a high rate of **recidivism** to psychiatric hospitals **and who are** typically unable to function in society. Many of **these individuals are indigent or homeless**. **Thresholds** actively outreaches to these individuals, delivering services to where they are located. The goal of ACT is to prevent unnecessary rehospitalization and to integrate these individuals into society.

Thresholds provides individualized **services and programs to meet the varying needs** of its clients; consequently, there is variation in the length of time a client remains in Thresholds. For example, some programs are intended to function as long-term support **systems**, so individuals may participate for **several** years, while other programs are designed to help clients work and live independently, so clients may participate for a **shorter** duration. Typically, clients leave Thresholds for one or more of the following reasons:

- **The client or client's guardian voluntarily discontinues services;**
- **The client has completed the service plan and, along with the program staff, has decided that his/her level of functioning has improved and will remain at the level where he/she will no longer need Thresholds' services;**
- **The client may be asked to leave if his/her behavior becomes so disorganized or disrupted that continuation in the program poses a threat to the client's safety and well being or that of other clients; and**
- **It is determined that Thresholds cannot meet the client's physical health needs, in which case a referral for appropriate medical care and/or other services will be made.**

Clients can always re-initiate services at Thresholds when they are ready or willing, even those who were asked to leave due to problematic behavior. Many clients who have left Thresholds re-initiate services when the agency develops relevant new or extended **services or programs**.

Some clients do not wish to seek employment at the time they enter Thresholds; rather, they may want social, educational, and residential support. Thus, a client may participate in Thresholds' rehabilitation services without participating in its vocational services. For the purposes of this report, though, **we** shall focus primarily on the vocational services that Thresholds offers.

Vocational Services at Thresholds

Thresholds provides a variety of vocational support and training services to mental health consumers, including vocational assessment, work adjustment, job placement, social skills training and stress management at work, job coaching and mobile job support, and liaising with employers and **coworkers**. Upon entering Thresholds, clients work with a case manager to determine their rehabilitation goals. If one of **these** goals is employment, then clients work with staff to develop an individualized plan for achieving employment based on their work history, career interests, strengths, and limitations. Typically, Thresholds attempts to

place its clients into competitive employment -- either full-time or part-time, depending on what the client desires -- with wages that are higher than minimum **wage**.¹³⁴

Most recently, Thresholds developed a Supported Competitive Employment (SCE) Program to enable clients to find and maintain community employment. This program is based on the belief that many individuals with psychiatric disabilities are capable of mainstream, competitive employment, particularly when offered adequate supports and services tailored to their individual needs. Both adults and young adults (ages 16-21) are offered these services in their respective programs.

a. Supported Competitive Employment (SCE)

The SCE Program for adults was developed through the funding of a three-year grant from the Robert Wood Johnson Foundation, Mental Health Services Development Program in 1987. The purpose of the project is to provide community employment and ongoing support to persons with a wide range of psychiatric impairments and a diversity of career goals. Prior to the development of SCE, Thresholds had a Transitional Employment Program (**TEP**) for the vocational services it provided. Individuals in TEP progressed from a time-limited group placement (where an individual worked with a job coach in a group setting, and was paid minimum wage by the employer), to a time-limited individual placement (where the individual worked alone under the supervision of the **firm's** own managers), to a permanent, unsupported job found with the help of a job club or job developer. TEP provided clients with an opportunity **to** test their work readiness, acquire a work history and references, and build their confidence as employees.

SCE expanded on the **services** offered by TEP in two ways: providing ongoing support and removing the time limits on job placements. A new staff position called the Mobile Job Support Worker (MJSW) was created to provide ongoing, mobile support and intervention at the work site or nearby for individuals in independent employment. This person would assist on an as-needed basis and provide evaluation, training, job development, and advocacy with employers and coworkers. By providing ongoing support, clients could be provided with as many or as few services as their needs dictated.

¹³⁴ Some clients who are lower-functioning may be placed into a sheltered workshop.

SCE also removed the time limits for many of its placements. TEP required clients to move to another placement or independent placement after a certain amount of time in the initial placement. Removing these time limits allowed clients to remain at the jobs where they were initially placed if they and their employer wished. It also gave more time to those who required longer periods before they were ready to move on to more challenging or independent employment. SCE, then, incorporates the transition aspects of TEP and expands TEP services to include more supports and no time constraints. As a result, clients receive ongoing assistance in obtaining employment, and then ongoing support in maintaining their jobs.

Clients may begin the SCE program by working on one of several vocational crews within Thresholds, such as the maintenance or kitchen **crew**.¹³⁵ This participation allows them to gain vocational experience and develop general work skills as well as to increase **self-esteem** and confidence. In addition, while on the work crew, clients are assessed in a variety of general vocational areas, such as work attitude, getting along with coworkers, taking directions from their **supervisor**, and other work behaviors. **This** assessment is used to help clients determine what areas they need to improve as well as when they might be ready for further vocational placement.

After participating in a vocational crew, clients can continue with group placement in the community. This involves clients working on site under the close supervision of a job **coach**.¹³⁶ Once clients perform well in the group placement setting, they can move to individual placement, where they work **alone** and under the supervision of the firm's own managers. Finally, once clients are ready to move on (there is no longer a time limit), they can engage in job search skills training (e.g. resume writing, interviewing) if necessary, and, with the assistance of SCE staff, undergo job search for an independent job in the community. Once placed, clients have the option of receiving support from a MJSW. SCE is able to provide job training, placement, and ongoing support for many individuals who might fail in time-limited, transitional vocational programs. It should be noted that clients are not required to engage in

¹³⁵ Some clients may not need to work on the work crews because they may be ready for placement into employment. In these cases, the client moves directly to receiving placement services.

¹³⁶ There are numerous jobs for group placement that Thresholds has arranged with area employers. Depending on the employer and the type of work, some jobs are paid and some are not.

all of the separate placement services mentioned above; clients may participate in any one or combination of these services, depending on their particular needs and abilities.

SCE consists of eight components:

- **Delivery of services at the workplace or nearby -- MJSWs** deliver intensive, short-term services on an as-needed basis at or near the client's work site. Services include training, monitoring, evaluation, advocacy, and counseling;
- **Development of a long-term employment program for lower-functioning clients --** Long-Term Teams (LTT) provide independent living skills training, problem-solving groups, and socialization experiences for clients who need a greater amount of training for a longer period of time. Placement of these clients is usually into less intense, more flexible jobs;
- **Operation of a training placement in a commercial setting --** Training Placement at a neighborhood factory provides long-term clients with paid experience doing jobs similar to those they will do on their first supported job. LTT staff serve as job coaches to conduct on-site evaluation, training, and support;
- **Provision of transportation and transportation training --**LTT clients are trained to use public transportation to reach work sites. Those who are unable to travel independently are transported by agency staff;
- **Development of new jobs for clients --** Agency staff develop new employment opportunities, particularly individual placements, through employer presentations, facilitation of an employer-to-employer referral network, and an Employer Appreciation Night;
- **Creation of Employer Marketing Module (EMM) and Employer Training Materials (ETM) --** EMM is used as a first contact to community employers who may not be familiar with the benefits of hiring persons with mental illness, and introduces them to SCE. ETM informs employers about various types of mental illness and how they affect work performance;
- **Project dissemination --** Information about SCE is disseminated through mailings to psychosocial agencies, presentations of program information and research findings at professional conferences and in journals, and use of preexisting business and industry networks: and
- **Research and evaluation -- This includes:** creating a data set to evaluate the effectiveness of supported employment services for psychiatrically disabled persons; assessing the employment potential of lower-functioning clients; and determining the degree of client satisfaction with program services.

b. SCE for Mentally Ill Young Adults (SCEMIYA)

The SCE Program for young adults was developed through funding from the U.S. Department of Education, Office of Special Education and Rehabilitative Services, in 1987. The primary objective of SCEMIYA is to deliver ongoing services to assist severely emotionally disturbed youth (ages 18 to 21) in achieving competitive employment and avoiding psychiatric rehospitalization. The program is based on the belief that most psychiatrically disabled youth are capable of competitive employment if given adequate support and an appropriate **client-employer** match. SCEMIYA is similar to SCE in that it expanded on TEP to include services that enable youth to receive ongoing support from **MJSWs** for as long as they need it, and also eliminated the time limits for group and individual placements. In addition, SCEMIYA provides services specific to needs of mentally ill young adults. SCEMIYA consists of five components:

- **Supported job placement, training, and maintenance services** -- The MSJW matches clients with community employers, conducts on-site training, and provides ongoing support (e.g. feedback, performance monitoring, and suggestions on **problem-solving** strategies) by working alongside the employee for several days or weeks. The MSJW tailors services to each client's needs, the goal being weekly or monthly visits to clients to assist them in maintaining their jobs;
- **On-the-job education component** -- A certified special education teacher who specializes in emotionally disturbed youth develops three curricula: the first focuses on issues of drugs and medications, and is intended to increase compliance with prescribed drug regimens and decrease workplace substance abuse; the second focuses on workplace management of psychiatric symptoms (e.g. job- and **illness-related** tension) through stress reduction techniques; the third focuses on clients who have a history of job placement difficulty due to inadequate social skills, and assists clients in developing conversational abilities, workplace-appropriate social behavior, and skills for dealing with emotions;
- **Night service for employed young adults** -- This provides casework coordination, peer support, educational assistance, and recreational activities for SCEMIYA clients;
- **Employer Involvement Program** -- This program consists of recruitment activities, employer education and training, and the dissemination of information to encourage more participation from community employers; and
- **Family Participation Program** -- This program offers basic information about mental illness and problem-solving steps to families of mentally ill youth. In addition, activities are offered that establish and encourage family involvement in the vocational process, such as family support groups and strategy sessions. The focus of the program is on difficulties encountered in living with a mentally ill family member and types of assistance parents and siblings can offer in job retention.

4. Referrals and Funding

Individuals are referred to Thresholds through a variety of sources, including hospitals, the Illinois Department of Rehabilitation Services, private therapists and doctors, schools, residential rehabilitation facilities, nursing homes, and other mental health providers. Most of the funding for Thresholds' vocational services and supports comes from the Illinois Department of Rehabilitation Services, with which it contracts to provide vocational rehabilitation services, and grant-in-aid contracts from the Illinois Department of Mental Health and Developmental Disabilities. Thresholds receives state and local grants, as well as grants from various foundations, that are used to develop new programs, such as SCE. In addition, some clients also pay for some services out-of-pocket on a sliding scale based on their ability to contribute to costs; however, this is rare since almost all of Thresholds' clients are receiving some type of public aid and are unable to afford to pay for the services themselves.

5. Evidence of Success

Jessica Jonikas, Director of Training, commented that in the country as a whole, the employment rate among former hospitalized psychiatric patients, which account for almost all of Thresholds' clients, has been estimated at approximately 10 to 20 percent.¹³⁷ In contrast, the employment rate among all active Thresholds day program clients is approximately 50 percent, and the rate among those active clients receiving job placement and support services is approximately 80 percent.¹³⁸ This success in employing active clients is particularly impressive considering that only three to seven percent of the clients were employed prior to entering Thresholds. In addition, day program clients worked an average of 80 percent of their total time in the program. Thus, not only does Thresholds appear to increase the proportion of clients who are working, but helps them stay employed for roughly three-fifths of the time that they receive services from the agency.

¹³⁷ Ms. Jonikas obtained this estimate from the following article: Frey, J.L. (1994). 'Long term support: The critical element to sustaining competitive employment: Where do we begin?' *Psychosocial Rehabilitation Journal*, **17(3)**, 127-134.

¹³⁸ It is important to keep in mind, though, that Thresholds' clients are not a random sample of previously hospitalized psychiatric patients; in fact, there is some selection that occurs for an individual to become a client of Thresholds. Consequently, a direct comparison cannot necessarily be made between employment rates for Thresholds and national employment rates for previously hospitalized psychiatric patients.

The percent of all day program participants employed six months after leaving Thresholds ranged from 34 percent to 45 percent. This is a drop from the employment rate of clients while active in Thresholds, but is still significantly greater than the national employment rate of former psychiatric patients.

6. Conclusion

Ms. Jonikas commented that one distinguishing aspect of Thresholds is the array of psychosocial services it provides. Thresholds' psychosocial approach to rehabilitation incorporates a wide range of **services** that enables it to assist a variety of individuals with different and changing needs. In addition, Thresholds emphasizes a flexible approach to providing services, meaning that it does not focus on a single goal or need, but **it** adds goals and needs as they change with time. Thresholds' services, then, can be adjusted and coordinated to meet the specific needs of **its** clients at different stages of their rehabilitation. For example, a client may enter Thresholds with goals of independent living and social skills training, and have no desire for any vocational **services**. Upon improving in these selected areas, however, the client may change his/her goals to include job placement and support services. Thus, by providing a variety of individualized services to clients at various points in their rehabilitation, Thresholds is able to effectively assist clients in meeting their specific rehabilitation goals and needs.

It appears that Thresholds has an above-average rate of placing former psychiatric patients into employment.¹³⁹ One possible explanation for Thresholds' **success** in placing clients is that it provides an array of services ranging from independent living and social rehabilitation to education and vocational rehabilitation. These services can be coordinated with each other to meet the specific goals of the client. Thus, a client who has vocational goals may receive vocational services, but may also receive other services that may enable him/her to more fully take advantage of the vocational services. For example, a client may receive training and job placement services in order to meet his/her vocational goals, and may engage in social skills training as well in order to develop the skills needed to adjust to a work environment. Thresholds' emphasis on providing **services** to meet a range of **needs** for a client, **then**, may ultimately **enable** the client to be **successfully placed** into employment.

¹³⁹ Comparisons are difficult because of variation among people with such disabilities.

In addition to providing an array of psychosocial rehabilitation services, Thresholds provides a comprehensive range of vocational services that can be coordinated to meet the specific needs and goals of its clients. For example, a client with few skills and no work experience may undergo vocational evaluation followed by various transitional placements before attempting to obtain an independent job; however, a client who has skills and work experience may choose to just participate in job placement services. Offering services that meet the specific vocational needs of its clients, then, is another possible explanation for Thresholds' success in placing clients into employment.

Other possible explanations for Thresholds' success are that it provides ongoing mobile job support through **MJSWs** and that it no longer has time limits for its placements. By providing ongoing support, clients can continue to receive supports and services even after they are placed. This allows them to have their job-related needs met as they occur, which may increase the likelihood of retaining their jobs. Also, removing the time limit for placements allows individuals who might have failed in a time-limited placement to remain at a job for as long as they need to before moving on to another placement. Giving clients more time to prepare for future placements, or even giving them the opportunity to remain at the initial placement, may give them a better chance at obtaining and maintaining a job.

E. **Rehabilitation Institute of Chicago**

1. **Introduction**

The Rehabilitation Institute of Chicago (**RIC**), established in 1954, is a private, **not-for-profit**, 142 bed specialty hospital that offers a range of inpatient and outpatient rehabilitation services. RIC brings together an integrated program for comprehensive care of individuals with severe disabilities, research into the mechanisms and management of disabling conditions, and training of professionals and the public about disability and approaches to its management.

RIC provides specialized rehabilitation programs and long-term follow-up for the treatment of patients with disabling conditions such as stroke, traumatic brain injury, spinal cord injury, multiple sclerosis, pulmonary diseases, and orthopedic conditions. RIC has numerous facilities, including a physical therapy department, a vocational rehabilitation

department, a department of psychology, a department of social work, a rehabilitation engineering center, and a complete diagnostic laboratory.

RIC's Vocational Rehabilitation Department (**VRD**) is a clinical department that provides comprehensive, direct vocational rehabilitation services, to patients. Services include vocational counseling, vocational evaluation, and job placement. In this report, we focus **primarily** on VRD.

VRD serves approximately 700 individuals each year, all of whom are severely disabled. Most clients in 1994 had a neurological impairment. In 1994, VRD had 184 clients who had placement or training as a goal. Of these clients, 86 percent (159) were placed into employment or training. In addition, VRD has a contract with the State Department of Rehabilitation to serve 235 of its clients, 75 of whom must be placed into competitive employment for at least 60 days in order for VRD to be funded. VRD also has a free care fund that is used to fund individuals who need services but are not funded by a third party and cannot afford to pay for services themselves.

2. Population Served

VRD serves approximately 700 individuals per year, all of whom have severe disabilities. Clients are determined to be severely disabled based on the guidelines of the Rehabilitation Services **Administration**.¹⁴⁰ Since many of **RIC's** clients are referred by the State Department of Rehabilitation (SDR), and the SDR only serves those who are severely disabled as determined by federal guidelines, RIC does not usually have to make any determinations as to whether an individual is severely disabled. In addition, RIC is seen as an agency of last resort, meaning that many of its clients have chronic and severe disabilities that other agencies, including the SDR, cannot serve.

In **1994, 33** percent of the clients had a brain injury, 19 percent had a spinal cord injury, 9 percent had a stroke, 8 percent had chronic pain (mainly lower back), and 28 percent had multiple sclerosis or other ailments (e.g. amputations, arthritis, muscular dystrophy, cerebral palsy).

¹⁴⁰ Federal Rehabilitation Services Administration guidelines for severe disability were listed in the description of Career Design, Inc., pp. 20-21.

3. Services Provided

The goal of VRD is to help its clients establish a practical and realistic vocational plan, with the ultimate objective being successful placement into competitive employment. VRD offers a wide range of **services** to achieve this goal, each of which may be used singularly or in combination with other services. These services include the following:

- **Initial Case Consultation** -- This is a comprehensive initial **interview** where information about the client's medical, educational, and employment history is gathered to develop an individualized vocational rehabilitation service plan;
- **Diagnostic Evaluation** -- This is an extensive, three-day evaluation where transferable work skills, achievement levels, aptitudes, and interests are assessed. The results are summarized in a report outlining the client's employability and placement potential;
- **Work Trial Assessment** -- This program places clients in work environments, many of which are located at RIC facilities, to assess and improve their skill levels, work behaviors, and endurance. Experience is offered in areas such as shipping and receiving, general maintenance, security, accounting, and clerical;
- **Internship Training Program** -- This program matches clients' abilities and interests with the needs of area businesses.¹⁴¹ This allows clients to strengthen job skills, obtain a current reference, and gain work experience, facilitating a more effective transition back to the workplace. Companies benefit by having a skilled, productive worker provided at little or no cost, as well as raising employer awareness about the productivity and employability of persons with disabilities. Internships are short term (3-6 months), and there is no obligation on the part of the company to hire the intern upon completion of the work experience. In addition, the internship may be paid or non-paid depending on the client's personal situation and the financial ability of the company. All interns have participated in vocational evaluation through VRD prior to beginning their internship at a company; and VRD staff provide support services while the client is an intern;
- **Job Seeking Skills Training** -- This program trains clients in the job search process, including resume writing and interviewing;
- **Skill Acquisition Program** -- VRD encourages clients to take courses at community colleges, to go through vocational training or workshops, or to get internships in order to gain skills. VRD networks with-various schools and programs to set up testing, evaluation, and counseling for its clients; and
- **Job Placement** -- VRD provides individualized job placement attention for each client, including on-the-job coaching and evaluations, site accessibility evaluations, labor market surveys, and post-employment follow-up. In addition, VRD uses the business

¹⁴¹ Internships are conducted in accordance with the Fair Labor Standards Act.

networks it has developed to help the client find a job, to coach the client on interviewing, and/or to obtain information or referrals for job positions. VRD also educates the employer about issues concerning persons with disabilities in the workplace.

These services can be used in any combination to fit the specific needs of the client. A client, though, may be required to first go through a vocational evaluation if he/she has not had an evaluation before. In addition, clients who have training or experience may forgo the evaluation process and move directly to other services, such as job placement.

Typically, an individual who is referred to VRD first enters vocational counseling and participates in an initial case consultation to determine what his/her general vocational goals are and to develop an individualized vocational plan. The client then undergoes a diagnostic evaluation to gauge his/her skills, experiences, and interests. The results of the evaluation are discussed with the client, the third party that referred and/or funded the client, and VRD staff to determine if placement should be a goal of the client. As mentioned previously, some clients do not have any vocational goals nor do they wish to be placed into employment. In addition, the client and third party may just wish to use **VRD's** vocational evaluation and then move on to receive placement services at another agency. Clients may also be determined to need long-term rehabilitation and then be referred elsewhere because VRD does not provide **long-term** vocational rehabilitation. However, if the client does have placement as a goal, VRD staff, in conjunction with the client and third party, determine what type of training, education, or placement would be most appropriate for the client.

Job placement service is provided on an individualized basis using the **RIC/Business TEAM** Committee. This committee is composed of business human resource professionals representing 65 major area employers, persons **with** disabilities, and VRD staff. The goal of the committee is to facilitate the hiring of people with disabilities by bridging the gap that separates them from the business community. It accomplishes these goals through four subgroups:

- **Training Subcommittee** -- This subcommittee works with **RIC** to help people with disabilities develop skills that meet the needs of the market place. It also trains employers to work effectively with employees with disabilities;
- **Employment Subcommittee** --**This** subcommittee promotes the 'placement of **RIC** clients into appropriate positions or internship programs in the community;

- *Advisory Board* -- This group follows the directions and changes in the business community as they relate to people with disabilities, and helps coordinate subcommittee activities to address these changes; and
- Membership **Subcommittee** -- This subcommittee publicizes the availability of workers with disabilities to stimulate their employment within the business community. It also solicits TEAM Committee membership among area corporations.

Vocational rehabilitation specialists (**VRS's**), all of whom have a Masters degree in Rehabilitation Counseling, provide vocational counseling, vocational evaluation services, and vocational case management. **VRS's** act as case managers for clients referred to job placement service component. Job placement specialists (**JPS's**) provide job seeking skills training, internships, job resources development, job placement, job coaching, and **post-**employment follow-up. Both **VRS's** and **JPS's** work together with the client to finalize the job placement assessment of the **client**, which includes job placement readiness, placement direction, and specific individual responsibilities in the job placement process. In addition to encouraging clients to independently search for a job, **JPS's** make over 500 employer contacts per month on behalf of clients.

4. **Referrals and Funding**

Most clients are referred to RIC through the SDR, workers' compensation and personal injury insurers, or physicians. RIC does not select its clients; **instead**, it responds to a third party's orders. For example, a client may be referred to RIC from a private insurer for vocational rehabilitation services, so RIC is required to provide the client with vocational services. However, it may be the case that the client does not desire vocational services, or is not ready to receive them; yet, RIC would still be required to provide these services to them. In addition, RIC may be requested to provide only a certain service for a client, such as vocational evaluation, and not be able to follow through with additional **services** since the client may not be contracted to receive these other services. Thus, RIC is limited not only in the extent of **services** it can provide for clients, but also in determining what services might be most appropriate for the client.

- All **RIC** clients are fully **funded**.¹⁴² Most clients are funded by the SDR (**40-50** percent), worker's compensation (approximately 15 percent), or **VRD's** free care fund (15-20 percent). Clients in VRD do not receive any funding from Medicare or public aid because these sources do not cover the vast majority (over 90 percent) of services that VRD provides. The free care fund provides funding for those individuals who are not funded by other sources (e.g. the SDR or private insurers) and cannot afford to pay for services themselves. The free care fund consists of donations and contributions solicited by **RIC**, as well as **RIC's** own funds. VRD, then, **serves** all individuals who come to RIC with vocational service needs, and provides services free of charge to individuals who are not funded.

VRD has a contract with the SDR to serve 235 of its clients each year. Under this contract, the SDR agrees to pay VRD a certain amount of money if VRD successfully places 75 of the **SDR's** referrals into employment each year. Successful placement, **as** defined by the SDR, is placement into competitive employment for 60 days or more. It is important to note that although VRD agrees to serve 235 from the SDR, in actuality, it **serves** closer to 500 individuals referred by the SDR. These additional clients are not funded by the SDR; instead, they are typically funded by **VRD's** free care fund.

VRD receives some funding for research programs from various **grants**.¹⁴³ For instance, its stroke program is funded by a regional grant. In addition, VRD has recently established a contract with the Veterans' Administration (VA) to provide vocational evaluation and placement for referrals from the **VA**.

5. Evidence of Success

In 1004, VRD had 184 clients who had employment or training as a vocational goal and 287 clients for whom placement was not a goal. Clients who participate in VRD but are categorized as not having placement as a goal include individuals who retire, relocate, do not want placement services from VRD (e.g. only want evaluation services), or do not want or are not able to be placed.

¹⁴² Mr. Sakalas stated that theoretically, clients who could afford to pay for services could pay **out-of-pocket**; however, he could only recall of one incident where this had occurred.

¹⁴³ There are no grants to provide services for clients.

Of the **184** clients who had placement or training as a goal, 86 percent (159 of 184) were placed into employment or training. Of the clients placed, 67 percent (107) were placed into employment, 11 percent (17) were placed into college, 8 percent (12) were placed into business or trade schools, 7 percent (**11**) were placed into internships, 6 percent (9) were placed into workshops, and 2 percent (3) were placed into high schools. All of the individuals placed into employment were placed into competitive employment, most of it full-time. The range of wages for those placed was large -- from minimum wage to **\$40,000/year**. The most common types of people placed were those with brain injury (23 percent), chronic pain (21 percent), or stroke (21 percent). The most common types of diagnosis for individuals who were categorized as not having placement as a goal were stroke (20 percent), paraplegia (20 percent), quadriplegia (14 percent), and brain injury (13 percent).

RIC has gained national recognition for its services for people with physical disabilities - it was ranked the top hospital in the field of medical rehabilitation for four consecutive years (1991-1994) by U.S. **News & World Report**. This ranking was based on a survey of 2,400 physicians in 12 specialties.

6. **Conclusion**

Mr. Sakalas stated that one feature that distinguishes VRD is the comprehensive, individualized services it provides. Clients develop individualized vocational plans specific to their needs and goals, and they are given personal attention for the development and fulfillment of the plan. In addition, because of the wide range of services that VRD offers, clients with various disabilities and varying skills and interests are able to have their needs and goals met. For example, lower-functioning clients may use the entire range of services, from vocational evaluation to work assessment, then possibly to an internship or the skill acquisition program, and finally to job placement; clients with more skills or less severe disabilities, though, may only need vocational evaluation before moving on to job placement.

Mr. Sakalas commented that another distinguishing feature of VRD is the individualized job placement services it offers through its TEAM Committee. VRD staff work with representatives of area businesses to develop appropriate and marketable employment skills for individuals with disabilities. In addition, the **RIC/Business** TEAM Committee uses its

connections to the business community to help place VRD clients into employment or internships.

Mr. Sakalas also noted that a distinguishing feature of VRD is the quality of services it provides. VRD staff have specialized training as well as years of relevant experience in the area of vocational rehabilitation and/or placement. Also, since **RIC** is a regional teaching center in rehabilitation, it is a policy that appropriate staff credentials and the assurance of high quality of service be **maintained**.¹⁴⁴

VRD is successful in training or placing clients who have placement or training as a goal. VRD's success rate is even more impressive considering that all of its clients are severely disabled, and many clients have disabilities that are too severe to be treated by the SDR. However, it is not possible to determine from the data how much of the success is due to the characteristics of the clients as opposed to features of VRD's vocational services. When including clients who do not have placement as a goal, VRD's placement rate drops to 34 percent. It is important to keep in mind, though, that among those categorized as not having placement as a goal are individuals who retire, relocate, or do not request placement services from VRD.

One possible explanation for VRD's success is that VRD, through its comprehensive, individualized services and business networks, is able to meet the various needs of its clients. Clients with few skills can develop marketable skills through an internship or the skills acquisition program before attempting to be placed; and clients who already have marketable skills can forgo training and just use VRD's business connections to obtain a job. Services, then, are tailored to meet the specific needs and goals of the client.

Another possible explanation for VRD's success in placing its clients is that the clients it places are motivated and have marketable skills and experiences. In addition, these clients may have disabilities that are not as severe as those clients who do not have placement as a goal. Thus, it is possible that some of the clients that VRD places would have been placed without the services of VRD.

¹⁴⁴ **RIC** is an academic affiliate of the **McGaw** Medical Center of Northwestern University Medical School.

Mr. **Sakalas** commented that providing services for people with disabilities is becoming a “numbers game.” By this, he meant that the trend in employment standards set by the federal Rehabilitation Services Administration has been to base funding for agencies and programs on how successful they are in placing their severely disabled clients into employment. As a result, it is becoming increasingly difficult for rehabilitation agencies which serve lower-functioning clients to meet the employment standards since it is more difficult to employ lower-functioning people. Thus, in order to continue to receive funding, agencies may begin to be more selective in choosing the severely disabled individuals for whom they provide services. The result of this would be that the group of people who are in most need of rehabilitative services -- those who are lower-functioning -- will be denied treatment. He viewed this trend with some concern, stating that rehabilitation involved more than placing a person into employment, and should not be reduced to merely those services that relate to that end.

F. **Conclusion**

The four programs we examined all provide comprehensive, individualized **services**. SFVS, Thresholds, and **RIC's** VRD offer comprehensive vocational services, such as evaluation and assessment of skills and interests, vocational and skills training, job search skills training, and job placement. CDI primarily provides a variety of evaluation and job placement services in its **Worknet** program as well as case management and job placement services for workers' compensation cases. These programs serve individuals with a wide variety of disabilities, most of which are severe. The types of disabilities range from visual and orthopedic disabilities to severe mental illness and neurological impairments.

One reason for examining these programs is to determine what aspects of the programs are successful and can be replicated by other programs. Administrators from three programs commented that providing a comprehensive range of **services** that are individually tailored to meet each -client's specific needs and goals was a key to their success. The administrator from the remaining program cited **its** strong connection to the business community as a key to its success. Although these program characteristics are often unique, it appears that they can be replicated by other programs.

There are several difficulties involved in attempting to evaluate and compare programs based on their outcomes and success rates. One difficulty is limited information on the types of clients the programs serve. The types of disability, the severity of the disability, and the motivation of the client to work can significantly affect the outcomes of the program, but the data to make such judgments may not be available. In addition, programs define the terms “success” and “placement” differently, and in many cases they differ on which clients are included in computing the placement rate. There is also the difficulty of comparing programs when the goals of and services provided by the programs differ. Assessing programs, then, involves examining a wide variety of factors in order to place outcomes and success rates in the proper context.

In addition to the difficulties in comparing programs, there are significant difficulties in **determining** the reasons for a program’s success. One such difficulty is that there is insufficient information to distinguish between the impact of the program on successful employment outcomes and the extent to which the program selects clients who have a high probability of success even without participation in the program. It is possible that the success of the program is due to the services it provides; however, it is also possible that the program may only select and serve individuals who have characteristics that enable them to be easily placed. There is a need, then, to collect better data on and more thoroughly evaluate both the characteristics of the programs as well as the characteristics of the individuals who are being served in order to determine the reasons for a program’s success.

Based on our case studies, it appears that a more in-depth evaluation of these and/or other promising programs is warranted. Such an evaluation could include site visits and an effort to gather consistent data across programs on costs, **services**, and outcomes. A more comprehensive evaluation would enable the Department of Health and Human Services to make more precise judgments about the impacts of the programs, the benefits relative to the costs, and the ability to replicate these programs elsewhere, .

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