

DISABILITY, SUBSTANCE ABUSE AND PUBLIC DISABILITY BENEFITS

by

DEBRA L. BRUCKER

A Dissertation submitted to the

Graduate School-New Brunswick

Rutgers, The State University of New Jersey

in partial fulfillment of the requirements

for the degree of

Doctor of Philosophy

Graduate Program in Planning and Public Policy

written under the direction of

Radha Jagannathan, Ph.D.

and approved by

New Brunswick, New Jersey

[May, 2007]

ABSTRACT OF THE DISSERTATION

Disability, substance abuse, and public disability benefits

By DEBRA L. BRUCKER

Dissertation Director:
Radha Jagannathan, Ph.D.

The public disability benefit system in the United States (US) currently does not award disability benefits to persons who have a primary diagnosis of substance abuse. A qualitative analysis examines the national disability systems of ten countries – Australia, Canada, Germany, Japan, the Netherlands, Norway, South Africa, Sweden, the United Kingdom, and the US - and determines that the US system is the only system having this limitation. Quantitative research methods are used to more fully understand the prevalence of substance abuse within the US disability benefit system and to examine the relationships among benefit receipt, substance abuse, participation in substance abuse treatment, and employment in the US. Using data from the 2002 and 2003 National Household Survey on Drug Abuse, the results demonstrate that some types of substance use disorders are more likely among certain disability beneficiaries and that disability beneficiaries who have substance use disorders are more likely to access treatment than persons with substance use disorders who are not beneficiaries. Results could not confirm, however, that those beneficiaries who access treatment are more likely to return to employment than those who do not access treatment.

Acknowledgements

I would like to thank my family, friends, colleagues and committee members for their patience, assistance, and encouragement. I owe particular thanks to my husband, Matthew, who spent countless hours entertaining our three boys so that I could have the time, energy, and quiet necessary to complete this dissertation.

Table of Contents

Abstract	ii
Acknowledgements	iii
Table of contents	iv
List of tables	v
List of figures	vi
Chapter 1: Introduction	1
Chapter 2: International experience with public disability benefits and substance abuse	29
Chapter 3: Disability and substance abuse in the U.S.	67
Chapter 4: Benefit receipt, substance abuse treatment, and employment	98
Chapter 5: Conclusion	132
Appendices	146
Bibliography	150
Curriculum vita	171

List of tables

	<u>Title</u>	<u>Page</u>
2.1	International disability prevalence and employment rates	37
2.2	Comparative rates of alcohol dependence and illicit drug abuse	39
2.3	Key informant contacts	45
2.4	Public disability program characteristics	47
3.1	Descriptive information on key study variables	77
3.2	Percent of adults reporting past year abuse and dependence	78
3.3	Percent of adults with past year alcohol or illicit drug abuse or dependence	79
3.4	Percent of adults with disabilities with past year abuse and dependence	80
3.5	Adult DI, SSI, DI/SSI participants with past year abuse or dependence	81
3.6	Logistic regression of alcohol abuse on disability and other control variables	85
3.7	Logistic regression of alcohol dependence on disability and other control variables	87
3.8	Logistic regression of illicit drug abuse on disability and other control variables	89
3.9	Logistic regression of illicit drug dependence on disability and other control variables	91
3.10	Summary odds ratios	93
3.11	Comparison of estimates for DI beneficiary abuse or dependence	96
4.1	Descriptive information on key study variables	104
4.2	Participation in any type of alcohol or drug treatment, past year	108
4.3	Health insurance and benefit receipt	109
4.4	Types of treatment participation during the past year	110
4.5	Logistic regressions of treatment in the past year on disability benefit receipt and other control variables	111
4.6	Ordinal regressions of treatment intensity in the past year on disability benefit receipt and other control variables	115
4.7	Descriptive information on key study variables	119
4.8	Employment, past week, among disability beneficiaries with abuse or dependence	121
4.9	Logistic regressions of binary employment variable	123
4.10	Logistic regressions of employment with ordinal treatment variable	125
5.1	Research questions and results	134

List of exhibits and figures

	<u>Title</u>	<u>Page</u>
Exhibit 2.1	Introductory e-mail sent to key informants	43
Figure 4.1	Ideal conceptual model	99
Figure 4.2	Conceptual model	100

CHAPTER 1: INTRODUCTION

INTRODUCTION

The target populations of public policies are often not defined as concrete, static categories, but rather are based on social constructions, i.e. the cultural characterizations or popular images of the persons or groups whose behavior and well-being are affected by public policy (Schneider and Ingram, 1993). Social constructions may be positive or negative, reflecting societal views as to which groups either deserve or do not deserve public support. The social construction of deserving groups impacts the development of many public programs, including those that serve persons with disabilities (Stone, 2005, 2002; Schneider and Ingram, 2005). Disability can be defined along a number of dimensions, including medical, social and occupational, and programs that serve persons with disabilities can target their services towards vastly different groups. Using solely medical criteria, the presence of an impairment that requires medical care or rehabilitation can qualify one as disabled. Programs that institutionalize such a definition of disability will target their services towards addressing the medically recognized needs of consumers. Alternatively, disability can be defined using a social model, in which disability is understood to result from the interaction between a person with a medical condition and the social forces that limit social and economic opportunities (Mitra, 2006). Programs that adhere to the social definition of disability will be broader in scope than programs that solely address medical needs. A number of public programs that target

persons with disabilities use an occupational definition of disability as eligibility criteria, in which the presence of an impairment that interferes with work activity is necessary for one to be termed “work-disabled”.

In the United States (US), two of the largest public programs that target persons with disabilities, Social Security Disability Insurance (DI) and Supplemental Security Income (SSI), adhere to a work-based definition of disability when determining working-age adult eligibility for benefits. Administered by the federal Social Security Administration (SSA), the programs provide monthly cash stipends and access to health insurance to eligible persons. Children with disabilities, elderly persons, and dependents of persons with disabilities are eligible for support through different eligibility criteria. While eligibility for working-age adults hinges on the inability to fully participate in employment, eligibility for other persons covered by these programs varies. DI, for example, can also provide benefits to family members of beneficiaries. Spouses of beneficiaries can receive benefits assuming they are either age 62 or older or are caring for the beneficiary’s child who is age 16 or younger. SSI provides benefits to children with disabilities as well as to persons who are age 65 or older, provided that certain income eligibility requirements are met (SSA, 2007). The focus of this dissertation, however, is on the adult or working-age beneficiary. For working-age adults, the programs aim to replace income and supports that are lost because of an inability to fully participate in the labor force. A guiding assumption of these programs is that adult beneficiaries would have been willing participants in the labor force were it not for the presence of a disabling condition.

Both US disability programs have seen sharp increases in the number of working aged beneficiaries over the last few decades, resulting in a subsequent large increase in the proportion of federal spending dedicated towards disability benefit programs (Social Security Advisory Board, 2003; Stapleton, 2004)¹. This increase, combined with a growing social recognition of the extent to which many persons with disabilities can and want to work, has led the US government to turn a sharp eye towards who exactly is eligible for benefits and to increase its commitment to facilitating employment among those who are eligible for disability benefits. Increasing rates of employment among persons with disabilities is expected to both decrease the rate of entry to the programs and to increase the rate of exit from the programs. Correspondingly, SSA has implemented a number of large-scale demonstrations and programs over the past 20 years to attempt to increase the employability of those who receive disability benefits. Past SSA employment demonstrations have suffered from low participation rates primarily because beneficiaries have been unclear about how participation in demonstrations might impact their receipt of benefits and health care. However, for those who do choose to volunteer, participation in such demonstrations has been found to have only modest effects on employment and earnings and minimal effects on benefit receipt (Rangarajan, Sarin, and Brucker, 2005)².

¹ Stapleton (2004), for example, estimated that total DI and SSI-related expenditures, after adjusting for inflation, increased by 70 per cent from 1989 to 2002, from \$47 billion to \$96 billion (year 2000 dollars). Spending on disability programs also increased as a proportion of all federal outlays, from 5.1 per cent in 1989 to 8.4 per cent in 2002.

² A recent review of such demonstrations found that participation in these demonstrations is typically very low, with a high of six percent of eligible persons choosing to participate. While increases between two and 18 percentage points were found in the proportion that attempted work in a given year, impacts on earnings ranged from negative \$900 to positive \$917 per year. Only very minor changes in benefit receipt were observed (Rangarajan, Sarin, and Brucker, 2005).

The US and other developed countries have concurrently experienced a major shift in the structure of their safety net programs, from programs that award benefits based solely on need to those that emphasize reciprocal responsibilities between individuals and government agencies. Many forms of cash assistance now, for example, require recipients to participate in the labor market (Organization for Economic Cooperation and Development, 2003; Esping-Anderson, 1990). As Gilbert (2004, 78) notes, the formalization of quasi-contractual arrangements within such programs specifies:

the clients' obligation and right to participate in education, training, job search, subsidized work, and other activities to improve their chances for paid employment, along with the agency's obligation to provide a range of supports and opportunities aimed at facilitating the movement of clients from welfare to work.

Many public income support programs in the US now emphasize reciprocal responsibilities between program participants and the state. State welfare programs, for example, require active participation in employment, training or job search activities in exchange for benefits.

Although not nearly as explicit as the expectations tied to the current family welfare program in the US, SSA is beginning to encourage higher levels of personal responsibility from its beneficiaries by promoting expanded opportunities for employment³. The focus on employment reflects a sense that work can both benefit the

³ In keeping with the focus on personal responsibility and employment, for example, SSA implemented the Ticket to Work program in 1999, providing every disability beneficiary with an opportunity to select an employment service provider of their choice to pursue employment. While there is no specific requirement that beneficiaries must participate in this program, the program is designed to provide monetary incentives to both beneficiaries and employment service providers in an attempt to encourage participation. The program is currently being evaluated. As with other SSA employment demonstrations, participation from beneficiaries has thus far been low (Mathematica Policy Research, 2007).

individual and reduce future government expenditures. Employment can provide tangible benefits to persons with disabilities, such as increased income, and intangible benefits, such as an increased sense of self-worth as a contributing member of the community. Programs that are designed to increase participation in the labor force can both increase public support for such programs, as public support for income support programs tends to be higher when there is a sense that recipients are working to improve their situations, and will eventually affect government savings by increasing their own economic self-sufficiency. In 1997, for example, the lifetime savings for assisting just an additional one percent of the 6.6 million working aged DI and SSI beneficiaries to leave the rolls was estimated at \$3 billion (GAO, 1997).

Another indication of a shift towards an increased emphasis on personal responsibility can be noted in a relatively recent change in the definition of disability used within SSA, a change which effectively formalizes a more narrow social construction of disability. The new definition does not include addiction, a condition that some would argue is a matter of personal control. Prior to 1996, substance abuse was legitimized as a disabling condition by SSA. With the passage of the Contract with America Advancement Act of 1996, however, SSA was no longer allowed to grant disability benefits to persons whose primary diagnosis was one of substance abuse or dependence (Watkins and Podus, 2000). The definition of disability was effectively narrowed to a group of persons who were deemed more “deserving” of disability benefits.

Social construction of disability. Disability is an ever changing social construct that has been subject to continual debate both domestically and abroad (Lieberman, 1995; Schneider and Ingram, 1993). When development of the federal disability benefit programs was first debated in the US Congress during the 1950's and 1960's, the very definition of disability was a matter of contention and conflict. One of the most contentious issues in the establishment of both of the disability programs (i.e. DI and SSI) was whether or not to include provisions for work rehabilitation, as disagreement existed among policy makers and members of the disability community about the extent of ability and the expectation for work among persons with disabilities. As a compromise, the programs were initially set up with a loose linkage to state vocational rehabilitation services in the hopes that some portion of beneficiaries would take advantage of available employment supports (Berkowitz, 2003; Wittenburg and Loprest, 2003). In recent years, a firmer consensus has emerged that no person with a disability or chronic illness should be denied the right to participate fully in society, including the right to work, when external barriers can reasonably be removed. The capability of participation in the labor force by persons with disabilities is viewed as much more of a possibility than in the past, given technological advances and the global movement towards a more knowledge-based economy. This new view of persons with disabilities arises from a shift in the social construction of what it means to be "disabled". Whereas earlier in the history of the US and other developed countries, persons with disabilities were more segregated from the general population and were routinely excluded from general educational and vocational opportunities, nations now are embracing opportunities to integrate persons with

disabilities into the educational and vocational communities that include the majority of the population. As Lieberman (1995, 439) points out, “(g)roup identities and social constructions do change, often quite rapidly. Some groups have been viewed quite differently at different points in history”⁴. His statement certainly holds true for persons with disabilities and can be said to apply to persons with substance abuse disorders as well.

Substance abusers, as a socially constructed group, have been the object of considerable debate over the years. Whereas some would argue that substance abuse is more a moral matter or a matter of personal responsibility, others would emphasize the medical nature of addiction. For example, McLellan et al. (2000), in an extensive review published in the *Journal of the American Medical Association*, argue that substance dependence should be insured, treated, and evaluated like other chronic illnesses.

On a more international scale, nations have debated the merits of adopting a criminal justice response to substance abuse over a more medical, rehabilitative approach, with one approach winning favor over the other in different localities and at different points in time. The US currently favors a more prohibitionist and punitive model for addressing substance use and has strongly encouraged other nations to adopt a similar model (Bullington, 2004). The intersection of persons with disabilities and persons with substance use disorders within the political realm is therefore a complicated matter, as the social construction of each group is continually shifting. In addition, the two groups are viewed quite differently in terms of deserving public support.

⁴ For further details on changes in the definition of disability over time, see: *Handbook of Disability Studies* (2001), GL Albrecht, KD Seelman, and M Bury, Editors.

A classification scheme developed by Schneider and Ingram (1993) can be used to understand the complications in justifying the provision of disability benefits to persons who are abusing substances. Schneider and Ingram propose a 2 x 2 matrix whereby social construction interacts with political power, classifying potential target populations for public programs into one of four categories. The categories relate type of social construction (positive or negative)⁵ to strength of political power (strong or weak). Powerful, positively constructed groups are *advantaged*; powerful, negatively constructed groups are *contenders*; weak but positively constructed groups are called *dependents*; and the unfortunate weak and negatively constructed groups are labeled *deviants* (Lieberman, 1995). Using this typology, Schneider and Ingram denote people with disabilities as members of the *dependents* category, whereas persons who abuse substances are labeled members of the *deviant* category. Persons with disabilities have a more positive social construction and thus are seen as more deserving of public assistance (i.e. disability benefits). Persons with substance abuse disorders have a more negative social construction and are less apt to be viewed as deserving of public assistance.

The negative view of substance use that dominates current US drug policy extends into areas of housing, nutrition assistance, and welfare assistance. Current law specifies, for example, that an entire family should be evicted from public housing if any member of the family is associated with drug dealing (Room, 2005). The Gramm Amendment, passed in 1996, imposes a lifetime ban on food stamps and welfare aid to

⁵ “Positive constructions include images such as ‘deserving,’ ‘intelligent,’ ‘honest,’ ‘public spirited,’ and so forth. Negative constructions include images such as ‘undeserving,’ ‘stupid,’ ‘dishonest,’ and ‘selfish’” (Schneider and Ingram, 1993, 335).

individuals with drug-related felony convictions, although states have the ability to waive this ban (Metsch and Pollack, 2005). In these instances, the negative stigma associated with substance abuse has resulted in the adoption of punitive measures that supersede concern for the provision of basic needs such as housing, food, and income.

Within the US, the negative social construction of persons with substance abuse disorders gained the upper hand over the positive social construction of persons with disabilities during the 1990s. A number of studies and news reports published during that time linked receipt of disability benefits to the purchase and use of drugs (Ries et al., 2004; Shaner et al., 1995; Satel, 1995; Phillips et al., 1999; Westphal, 1999; Grossman et al., 1997; Halpern and Mechem, 2001). When SSA began to face considerable public pressure about providing disability benefits to such an “undeserving” population of substance abusers, legislators took action to codify a new policy which would remove substance abuse as an acceptable form of disability (Hunt and Baumohl, 2003). The stigma of substance abuse essentially overrode concern for providing benefits to members of the dependents category. As passing laws and adopting certain policies formally institutionalizes certain social constructions and inhibits others (Lieberman, 1995), SSA, in essence, institutionalized a new social construction of disability, a definition that did not include room for substance abuse.

In the current environment, however, SSA is making a concerted effort to increase employment among its disability program beneficiaries. Is it possible that the new social construction of disability that was contained in the 1996 legislation is in fact currently hindering the attainment of one of SSA’s key organizational goals? A portion of current

beneficiaries may have secondary, unidentified substance use disorders, yet are not being actively encouraged by the disability benefit system to seek treatment because SSA no longer addresses issues of substance abuse. Treatment may, however, help to facilitate employment for the portion of beneficiaries who have co-occurring substance use disorders.

BACKGROUND LITERATURE

The analysis conducted here seeks to assess this issue by examining how disability policy makers, both domestically and abroad, view substance abuse in relation to disability benefit programs. Available evidence about the relationship among disability benefit receipt, substance abuse, substance abuse treatment and employment outcomes within the US disability benefit system will also be examined. The rest of this chapter contains a review of the literature which will set the stage by providing some background information on the interaction of these variables within the US. Information is provided on disability and substance use, disability benefit receipt and substance abuse treatment, and treatment and employment.

National estimates of disability can vary according to the type of definition used. The Survey of Income and Program Participation (SIPP), for example, uses a broad definition of disability that incorporates a variety of functional limitations that may or may not be related to work, as well as a number of activities of daily living. The SIPP asks respondents about their ability to perform any of the following specific sensory and physical activities: seeing ordinary newspaper print (with glasses or contacts if normally

used), hearing normal conversation (using a hearing aid if normally used), having speech understood, lifting or carrying 10 pounds, walking a quarter of a mile without resting, climbing a flight of stairs without resting. Difficulty in performing any of these activities is classified as a functional limitation. The ability to conduct activities of daily living are assessed by determining whether the respondent needs help from other people with personal care needs such as bathing, eating, dressing, getting around inside the home., getting into or out of bed or a chair, and toileting (National Institute on Disability and Rehabilitation Research, 2006). In 1998, approximately 19 percent of the working age population met this broad definition of disability (National Institute on Disability and Rehabilitation Research, 2004).

Alternatively, the Current Population Survey (CPS) uses a strictly work-based definition of disability, identifying persons who self-report a health problem or disability which either prevents them from working or which limits the kind or amount of work they can do. Recent estimates from the CPS suggest that almost eight percent of the adult population had a disability in 2002 (Houtenville, 2006). Even using this narrower definition of disability, it is apparent that a substantial portion of the US population is affected by disabling conditions.

A host of federal, state, and local public agencies devote substantial resources towards providing services for persons with disabilities. Yet despite recent efforts by these public agencies to promote equal access to educational, employment, and health care opportunities, persons who are disabled have been found to be less likely to

complete higher levels of education, more likely to be unemployed, and more likely to be living in poverty than persons who are not disabled (Kopels, 1995).

Substance use among the general population. Substance⁶ use in and of itself can have serious consequences on health, educational attainment, and employment. Substance use that interferes with life activities can be classified as either abuse or dependence. The use of alcohol and illicit drugs can be described on a continuum, ranging from low levels of use to higher levels of use that are clinically defined as abuse and dependence. Criteria for clinical substance abuse and dependence are outlined in detail in the *Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV)* (American Psychiatric Association, 1994, 175-272). Generally speaking, abuse is defined as any pattern of substance use that results in repeated adverse social consequences. The failure to meet work, family, or school obligations, and the existence of interpersonal conflicts or legal problems are evidence that substance use behavior meets the criteria for abuse. In contrast, substance dependence is more characterized by the physiological and behavioral symptoms related to substance use. Symptoms of dependence include the need for increasing amounts of the substance to maintain desired effects, the presence of withdrawal symptoms upon cessation of substance use, and the dedication of an inordinate amount of time to activities related to substance use. Dependence is the more severe diagnosis and is used to describe a state in which a physical manifestation of use has become pronounced (The Thompson Corporation, 2004).

⁶For purposes of this analysis, the term “substance” will include both alcohol and illicit drugs.

Substance abuse researchers have identified a number of personal and environmental factors that are related to an increased probability of using alcohol and illicit drugs (Hawkins, Catalano and Miller, 1992). A recent literature review that compared drug dependence to other chronic conditions such as type 2 diabetes mellitus, hypertension, and asthma found that “genetic heritability, personal choice, and environmental factors are comparably involved in the etiology and course of all of these disorders” (McLellan, Lewis, O’Brien, and Kleber, 2000, 1689). The principal correlates of adult substance use examined in the 1990 National Household Survey of Drug Abuse (NHSDA) were age, gender, race, ethnicity, educational attainment, current employment status, population density, and geographical region of residence (NIDA, 1991). Some researchers have demonstrated how rates of abuse and dependence vary according to race and ethnicity (Akins, Mosher, Rotolo, and Griffin, 2003), age of first use (Kosterman, Hawkins, Guo, Catalano, and Abbott, 2000) and gender (Li and Ford, 1998).

Patterns of alcohol and illicit drug use can impact a number of life activities. Substance use and abuse can interfere with labor force participation, workplace attendance and job performance (NIDA, 2003; Harwood, Fountain, and Livermore, 1998). Marijuana users, for example, have been found to have more frequent absences from work than non-users (NIDA, 2003). Alcohol-related productivity losses in the US were estimated at \$119 billion during 1992 (Harwood et al., 1998). Substance use has also been found to interfere with vocational rehabilitation (Moore and Li, 1994) and to diminish the likelihood of successful education (Wallace and Bachman, 1991) or

employment (Zhang and Snizek, 2003; Wilson, 1996; Kandel and Davies, 1990; Kandel and Yamaguchi, 1987).

Perhaps more importantly, substance use has a definitive influence on health as well. Excessive alcohol use has been linked with a number of health problems including heart disease and cirrhosis. Substance use, abuse or dependence can exacerbate certain medical conditions such as cardiovascular disease, stroke, cancer, HIV/AIDS, hepatitis and lung disease (National Institute of Drug Abuse, 2007; Bombadier, Blake, Ehde, Gibbons, Moore, and Kraft, 2004; National Institute of Drug Abuse, 2003) and complicate treatment regimens (Dickey, Azeni, Weiss, and Sederer, 2000).

Substance use among persons with disabilities. Although in principle a reciprocal causal relationship may exist between substance abuse and disability, most recent empirical research has supported the notion that the presence of a disability significantly increases the risk of alcohol and illicit drug use (Moore and Li, 1998; Gilson, Chilcoat, and Stapleton, 1996; Moore, Greer, and Li, 1994; Moore and Polsgrove, 1991; Heinemann, Goranson, Ginsburg, and Schnoll, 1989). Disentangling the health, economic, and social factors that may underlie the presence of disability is, in and of itself, a complicated task (Mitra, 2006). Attempting to isolate the specific reason why the presence of a disability increases the risk of substance use is an even greater challenge. Some researchers (Li and Moore, 2001) have examined this link from a sociological labeling theory approach, asserting that certain persons with disabilities who react negatively to the labeling often associated with having a disability are more likely to participate in deviant activities such as illicit drug use. Others (Li and Ford, 1998;

Ogborne and Smart, 1995) have identified a broader range of co-occurring issues (i.e. unemployment, life experiences, discrimination, attitudes towards substance use by persons with disabilities) that appear to heighten the risk of substance use.

As persons with disabilities are likely to already be facing challenges in the area of personal health, the interaction of substance use with disabling conditions has been the focus of a range of research. Much of the research on the intersection of disability and substance use has focused on the co-occurrence of substance abuse and psychiatric disorders (Ross, Dermatis, Levounis, and Galanter, 2003; Dickey, Azeni, Weiss, and Sederer, 2000; Crome, 1999; Drainoni and Bachman, 1995). Additional research has focused on substance use behavior among persons with other types of disabilities including spinal cord injury (Heinemann et al., 1989), multiple sclerosis (Bombardier et al., 2004), traumatic brain injury (Kreutzer, Witol, and Marwitz, 1996), and mild learning disabilities (McGillivray and Moore, 2001). The presence of certain types of disabilities has been found to result in poorer substance abuse treatment outcomes (Ross et al., 2003). Dodge et al. (2005) found, for example, that a person who was depressed had a significantly decreased likelihood of abstinence at discharge from treatment, even after controlling for other important demographic and treatment variables.

BENEFIT RECEIPT

Social Security disability programs. SSA administers two programs for persons who are disabled: DI and SSI. Created in 1956, DI is a federal program that provides monthly cash benefits and access to Medicare to eligible work-disabled adults and their

dependents. DI is a social insurance program intended to provide support to those who have participated in the labor force. About 6.1 million disabled workers received DI in December 2004, an increase of 23 percent from 2000 (SSA, 2005b). DI beneficiaries are eligible for Medicare after a two-year waiting period, and may be eligible for Medicaid if they have low incomes and meet state guidelines for coverage. In June 2005, the average DI monthly payment to disabled workers was \$897.

In contrast to DI, SSI is a means-tested income assistance program that provides monthly cash benefits to aged, blind or disabled persons, regardless of work history. SSI was created in 1972 to replace various state public assistance programs (National Council on Disability, 2005). In December 2004, about 4.0 million people aged 18 to 64 received SSI benefits, an increase of eight percent since 2000 (SSA, 2005a). In 2005, individuals eligible for SSI could receive a maximum monthly federal cash payment of \$579. States may also choose to supplement this amount (SSA, 2005). Eligibility for SSI generally qualifies recipients for Medicaid, a state/federal health insurance program.

As with most public programs, the eligibility determination process associated with these programs is complex. In addition to the financial and work-related eligibility criteria that apply to working-age adults, eligibility essentially hinges upon a determination that a person is currently unable to work at a substantial level due to a medical condition that is expected to last a year or more or has a medical condition that will result in death (SSA, 2003a). To apply for benefits, an applicant must provide SSA with detailed information on income, assets, and impairment. While SSA can quickly determine whether the applicant meets the income and asset criteria, the assessment of

disability status is far more complicated and time-intensive. Local SSA officers forward eligible cases to state Disability Determination Service (DDS) agencies, which collect detailed documentation of the applicant's impairments, including physician records and other forms. DDS then makes a decision regarding the severity of the impairment and the applicant's ability to complete *any* work in the national economy based on medical information and other characteristics, such as age and education.⁷ Because of the complexity of this assessment, the initial DDS determinations take an average of 120 days. A large portion of initial applications are rejected, often because applicants have higher than eligible income or asset levels or conditions that are deemed to not meet the severity or duration criteria set by SSA (SSA, 2003).

Most applicants reapply for benefits using the SSA appeals process. The entire application process can last anywhere from several months to several years. After an award is made at any level, SSI benefits are paid retroactively to the date of application, and DI benefits are paid retroactively to five months after the onset of disability.

The largest portion of SSA disability benefits are awarded to persons with mental disorders. In 2000, 27 percent of DI beneficiaries and 34 percent of SSI recipients received benefits due to the presence of a mental disorder (Bilder and Mechanic, 2003). Prior to the passage of the Contract with America Advancement Act of 1996, federal

⁷ The disability determination process occurs in five stages. Step 1 is an initial work test which requires that an applicant not be working at a job that pays over the substantial gainful activity level set by SSA (\$830 in 2005). Step 2 is a test of the severity of a person's condition. An applicant can be denied entry into a disability program if the condition is deemed not severe or is not expected to last more than 12 months. Step 3 is a medical-listing test. A person can be allowed benefits at this stage if the disabling condition meets or equals any of the severe medical conditions listed in the SSA medical listings. Step 4 is a test of previous work, to determine whether the applicant can do the work he had been doing. If so, the case is denied. If not, the case proceeds to the fifth step, a determination as to whether an applicant can perform any work that exists in the national economy (Social Security Administration, 2003).

disability benefits could also be awarded on the basis of substance abuse. In 1994, an estimated 250,000 people were receiving either DI or SSI benefits at least partially due to diagnoses of addiction (comprising 2.8 percent of the DI population and 4.8 percent of the SSI population) (GAO, 1994, 3).

Benefit receipt and employment. The prevalence of work among disability beneficiaries increased throughout the 1980s (from about 6.5 percent of beneficiaries in 1982 to 9 percent in 1990), but the rate of employment has leveled off, staying between 8.5 to 9 percent throughout the 1990s (Newcombe et al., 2003). Relatively low rates of employment among public disability beneficiaries are to be expected as the public disability benefit programs were designed to serve people who have passed an extensive test showing that they cannot engage in certain levels of employment due to the presence of a significant disability. If a large portion of disability beneficiaries were in fact working, it would call into question how well agencies were implementing their respective eligibility criteria.

High rates of unemployment have been cited as troubling, however, since surveys suggest that many unemployed people with disabilities want to work. Harris and Associates (National Organization on Disability, 1998) estimate that as many as 79 percent of people with disabilities have a general desire to work. While the surveys probably overstate the rate at which people will actually pursue employment, they do show that much of this population wants to work, despite the presence of a disability.

As mentioned earlier, the impact of past SSA demonstrations on increasing rates of employment for beneficiaries has been minimal. Promoting employment among

recipients of public disability benefits has proved challenging for a number of reasons. First, certain economic disincentives are tied to benefit receipt. Any person deciding whether or not to enter the labor market must weigh the various costs and benefits associated with working. For persons receiving disability benefits, this decision is further complicated by the fact that benefits are often reduced or ended if certain earned income thresholds are reached. Often, the potential difference in income from working is too small to provide any incentive to work (Fraker and Moffitt, 1988; Gerry, 2005; Knox et al., 2000; Moffitt and Rangarajan, 1991).

SSA has tried to address this concern by developing a number of work incentive policies⁸ that would reduce the economic cost of working; however, these policies are often very complicated for consumers to understand. After participating in the lengthy disability benefits application process in which applicants must prove that they cannot engage in any substantial work, many beneficiaries incorrectly believe that they are not allowed to work at all. Others know that they can engage in some work but do not know how work will affect their benefits and what work incentives are available to allow them to earn and save more. This barrier is heightened when beneficiaries participate in more than one public assistance program, each with its own rules and incentives concerning work (Brooke, 2002; Gerry, 2005; Kregel and Head, 2004; Miller and O'Mara, 2003).

Reduced employer demand for a person with disabilities is also a significant factor in the low rates of employment among beneficiaries. Inaccurate perceptions about

⁸ SSA work incentives include, for example, the Plan to Achieve Self-Support that allows SSI recipients to set aside money for work-related expenses or services and the Trial Work Period for DI beneficiaries that allows beneficiaries to test their ability to work for nine months without having their monthly benefit amounts reduced (SSA, 2006).

the abilities and employment potential of people with disabilities can make it difficult for them to obtain jobs (Acemoglu and Angrist, 2001; DeLeire, 2003; Gerry, 2005). Discrimination against older workers and racial/ethnic minorities with disabilities can pose additional barriers to beneficiaries finding work.

Access to health insurance has been identified as another significant barrier to the employment of DI and SSI beneficiaries (Ireys et al., 2003). Persons with disabilities typically have higher health care costs, increasing the value of any public health insurance associated with benefit receipt. A portion of beneficiaries do not attempt to enter the labor market because of concerns about losing benefits and their associated health insurance. SSA has tried to address this concern by implementing policies that would allow beneficiaries to maintain some level of access to health insurance for a certain period of time, even after benefit receipt has ceased.

Barriers related to the type of disability have been found to be important as well. Persons with certain types of disabilities may require specific accommodations in the workplace, including physical adaptations, flexible schedules, adaptive technology, and assistance getting to and from work (Bond et al., 2001; Decker and Thornton, 1995; Mueser et al., 2003; Rupp and Bell, 2003). Persons with some types of disabilities have higher rates of employment than others. SSI beneficiaries with mental retardation have been found to be more likely than other SSI beneficiaries to work. Mental retardation is a common diagnosis amongst SSI beneficiaries, second only to mental illness. Nationwide, in September 2003, 22 percent of SSI beneficiaries ages 18 to 64 (approximately 853,000 people) had a primary diagnosis of mental retardation. Nearly 16 percent of the 22

percent of SSI beneficiaries with mental retardation worked during September 2003, compared to only six percent of all SSI beneficiaries (Pickett, 2003). This higher level of work reflects both personal characteristics and the nature of the environment, including relatively well-developed local service systems for persons with mental retardation.

Disability benefit receipt and substance abuse. Much of the past research into the relationship between disability benefit receipt and substance abuse has focused on examining whether receipt of benefits increases or decreases substance use. Counter to the flurry of reports that were released in the 1990s linking benefit receipt to higher levels of the purchase and use of substances, more recent studies have not confirmed the existence of such a link. The studies released in the 1990s focused on spikes in purchase and use of substances in the timeframe immediately following receipt of benefit payments in a given month. Examining a cohort of SSI recipients after the passage of the Contract with American Act, Watkins and Podus (2000) found that continuation of SSI benefits was associated with less substance use and that loss of benefits was not associated with a significant change in use. Most studies that have attributed a relationship between disability income and ongoing substance abuse (Shaner et al., 1995; Frisman and Rosenheck, 1997) have been done with seriously mentally ill clients and their results may not apply to individuals without co-morbid mental illness. Rosen et al. (2006), for example, examined whether receipt of SSI or DI was associated with increased substance use for three different groups of persons who were homeless and mentally ill – participants who did not receive benefits during the 12-month enrollment period of the study, those who were newly awarded benefits, and those who had benefits

prior to and during the study. In comparing the three groups over a period of four years, the researchers found that participants who were newly awarded benefits had no greater drug use than those without benefits; and those who had benefits prior to and throughout the 12-month period had higher levels of drug use than those without benefits. Longitudinal data did not support, however, the idea that receipt of benefits facilitated drug use, even for this population.

TREATMENT

Substance abuse treatment. Offered through a network of public, non-profit, and private service providers, treatment for substance abuse and dependence may include detoxification services, residential services, outpatient services, intensive outpatient services, case management, or methadone treatment. Empirical evidence has shown that treatment is a cost effective method for addressing substance abuse (Scanlon, 2002) and that treatment is effective in limiting substance use, criminal activity, and improving quality of life outcomes for as many as five years after treatment (Wilson et al., 2005; Lu and McGuire, 2002). Lu and McGuire (2002) caution, however, that self-selection issues may skew the results of treatment evaluations, as more motivated clients may be more apt to engage in and complete treatment than less motivated clients and that motivation to get well may be an important factor affecting outcomes.

The costs associated with treatment services may be covered by private health insurance, public health insurance, or out-of-pocket expense. As substance abuse treatment services are commonly included as part of mental health treatment services

offered through insurance plans, issues of parity with other types of health care services are cause for concern. Insurers often cover mental health services at lower levels than other types of health services (SAMHSA, 2004e). Public and private insurers do not cover substance abuse treatment at the same level as other health services and state governments are often left to fill the gaps (Scanlon, 2002).

The federal government provides substance abuse prevention and treatment funding to states through block grants from the Substance Abuse and Mental Health Services Administration (SAMHSA). In 2005, this Substance Abuse Prevention and Treatment block grant, which is used to fund a number of substance abuse related services within states, totaled nearly \$1.7 billion (SAMHSA, 2004f). The federal government and state governments jointly dedicate a large number of resources towards substance abuse treatment services. In the year 2000, states spent \$2.5 billion on substance abuse treatment (NCASA, 2001).

Medicaid programs may provide a range of treatment services under either fee-for-service or managed care arrangements. States have wide discretion about the scope of substance abuse treatment coverage that is offered through Medicaid. Allowing such a high level of discretion, however, has led to great variation in the way that states address substance abuse treatment needs under currently tight financial circumstances. Whereas some states offer a wide array of services, others offer more limited options. In a number of states (Idaho, Indiana, Louisiana, Montana, Nebraska, Nevada, New Hampshire, New Mexico, and Texas), substance abuse treatment services are not covered under Medicaid. Other state Medicaid programs only cover substance abuse treatment for select groups of

people. The Colorado Medicaid program will pay for substance abuse treatment for pregnant women while the California Medicaid program will offer residential rehabilitation treatment only to persons who are developmentally disabled. In addition, several state Medicaid programs (California, Colorado, South Carolina, New Jersey) only cover treatment that is offered through state approved treatment providers (The Kaiser Commission on Medicaid and the Uninsured, 2004).

Disability benefit receipt and participation in treatment. Prior to 1996, SSA required SSI recipients who were receiving benefits on the basis of substance abuse to receive treatment, although SSA did not itself provide payment for this treatment. Instead, recipients were instructed to access existing state substance abuse treatment systems (GAO, 1994; Nibali, 2000). The most likely opportunity for this population to obtain services was through Medicaid, a program for which SSI recipients are categorically eligible. DI beneficiaries were not required to attend treatment (GAO, 1994), and, at any rate, were primarily covered by Medicare insurance, insurance which does not provide access to the range of substance abuse treatment services that are available through Medicaid. In addition to the limitations inherent in existing state treatment systems, the actual monitoring of this treatment requirement for SSI recipients by SSA was quite lax and few recipients complied. Furthermore, no records of outcomes for persons who did participate in treatment were kept (GAO, 1994).

After the passage of the Contract with America Act, benefits were terminated for the approximately 210,000 SSI and DI beneficiaries whose primary disability was substance abuse. Most (64 percent) of these beneficiaries attempted to be reclassified

under another type of disabling condition but only 35 percent had conditions other than substance abuse that were severe enough to warrant the award of benefits (Watkins and Podus, 2000). One study examined the impact of this termination of benefits on participation in treatment. The target population for the study was SSI recipients in Los Angeles County during 1996-1997. Two-hundred and seventy-three recipients participated in both the baseline and one-year follow-up interviews. All recipients were receiving benefits at baseline and were thus initially mandated to participate in treatment. Some recipients had their benefits continued during this time period, while others did not. Results suggested that treatment participation for both groups dropped significantly (from 47 percent to 21 percent), and the authors suggest that a portion of this decline may be due to the cessation of the mandate for treatment participation (Watkins and Podus, 2000).

Treatment and employment. While the majority of studies that examine the effectiveness of substance abuse treatment have focused solely on whether positive changes in the substance using behavior were maintained, some have focused on multiple outcomes, including employment. The Drug Abuse Reporting Program, for example, found statistically significant improvements in both substance abuse and employment when comparing status at follow-up to that prior to treatment (Sells, 1974; Simpson et al., 1979 and Simpson 1981 as cited in Institute of Medicine, 1990, page 168) (Lu and McGuire, 2002). A 2003 review of eleven benefit-cost studies found that benefit-cost ratios associated with substance abuse treatment ranged from 1.33 to 23.33 and that benefits mostly accrued due to reductions in criminal activity, with smaller contributions

from increased earnings and averted health care costs (McCollister and French, 2003). French, Salome, and Carney (2002) found that while the majority of benefits from participation in treatment could be attributed to reduced criminal activity, statistically significant differences also existed between participant earnings six months after entering residential treatment in the State of Washington. More recently, using primary and administrative data on client outcomes and agency costs from 43 substance abuse treatment providers in California during 2000-2001, a 2006 study confirmed earlier research findings that the provision of substance abuse treatment provides a 7:1 ratio of benefits to costs. Average treatment costs were \$1,583 and the monetary benefit to society was estimated at \$11,487. Sixty-five percent of the total benefit was due to reductions in crime costs (including incarceration), twenty-nine percent was due to increased employment earnings, and six percent was due to reduced medical and behavioral health care costs (Ettner et al., 2006). The design of these studies makes it difficult to exactly determine what proportion of clients experienced what level of earnings gains, yet the implication is clear that treatment has a positive effect on employment outcomes.

Dissertation outline. The remainder of the dissertation will delve into these issues in more detail. Chapter 2 will explore whether other national disability systems consider substance abuse as a disabling condition and, if so, whether treatment participation is required in exchange for benefit receipt. It also considers whether the US treatment of substance abuse within its federal disability programs is similar to the treatment of substance abuse found within other liberal national disability benefit

systems, systems that also focus on encouraging employment. Chapter 2 is based upon information obtained from the US and nine additional countries: Australia, Canada, Germany, Japan, The Netherlands, Norway, South Africa, Sweden, and the United Kingdom. The chapter describes the social construction of disability that is institutionalized within national disability programs, providing a framework for empirical analyses that examine the interaction among disability, disability benefit receipt, substance abuse, substance abuse treatment, and employment outcomes within US disability programs.

Chapters 3 and 4 will empirically explore the relationships among disability, substance abuse, benefit receipt, treatment participation and employment using descriptive and multivariate analyses. Chapters 3 and 4 rely upon the same primary data sources, the 2002 and 2003 versions of the National Survey of Drug Use and Health (NSDUH), to conduct the empirical analyses. Using cross-sectional data, Chapter 3 estimates current rates of alcohol and illicit drug abuse and dependence for adult DI beneficiaries and SSI recipients to understand the current extent of substance abuse within US disability programs.

In Chapter 4, the relationships among disability benefit receipt, participation in substance abuse treatment and participation in the labor force within the US are explored. First, the relationship between disability benefit receipt and use of substance abuse treatment is examined, to test whether benefit receipt is an independent correlate of treatment. The first section of Chapter 4 will therefore examine the relationship between disability benefit receipt and participation in substance abuse treatment, for those

beneficiaries who have either alcohol or illicit drug abuse or dependence. Of interest will be whether persons with substance abuse disorders who receive disability benefits are more, less or equally likely to participate in substance abuse treatment than those who do not receive disability benefits.

The second set of analyses addresses the question as to whether or not beneficiaries who do participate in treatment are more likely to be employed, addressing the extent to which substance abuse treatment influences the decision of persons with substance abuse disorders to work for pay. The presence of a significant difference in effects between those who participate in treatment and those who do not will provide support for the idea that SSA should be investing time and resources towards encouraging treatment for beneficiaries who have substance abuse issues.

The concluding chapter summarizes the analytical results and sets them within the international context described in Chapter 2. The chapter reviews how the disability policy community views substance abuse, both here and abroad, providing an understanding of how the social construction of disability is tied to broader policy goals. In addition, the concluding chapter provides an examination of the relationship among disability benefit receipt, substance abuse, substance abuse treatment, and employment to understand whether the particular social construction of disability embodied within the current SSA disability programs is actually hindering the attainment of program goals.

CHAPTER 2: INTERNATIONAL EXPERIENCE WITH PUBLIC DISABILITY

BENEFITS AND SUBSTANCE ABUSE

INTRODUCTION

Gaining an understanding of the comprehensive disability benefit and substance use policies institutionalized within various other countries can provide a framework for an examination of the relationships between disability and substance abuse within the US disability system. Disability programs are part of the social safety net of countries and as such can be thought of as reflective of the type of welfare state institutionalized within different countries. The term “welfare state” is generally used to describe those governmental resources that are allocated towards ensuring that the basic needs of citizens are met, yet variations exist among the levels and types of support provided amongst welfare states. The composition of disability benefit programs varies widely from country to country, with some programs providing more comprehensive systems of support than others. Whether or not substance abuse is considered a legitimate condition for receipt of disability benefits depends on the dominant social constructions of disability and substance abuse that exist within a particular country.

While disability policies can clearly be defined as part of what is termed the welfare state, substance use policies as a whole cannot be consolidated into just one convenient category, as they span both the welfare state and the criminal justice arena. Whether substance abuse is defined as a medical disease, a personal choice, or some combination of the two can impact the types of policies and services dedicated to

substance use within a country. Types of institutionalized substance use policies differ greatly from country to country, reflecting variations in social constructions of substance use. Policies typically favor some combination of rehabilitative and punitive components, with certain countries relying more strongly on one approach than another at different points in time. The emphasis on specific components of these policies varies not only across countries at a particular point in time but also varies over time within individual countries. Whether substance use policies provide for treatment or health care for persons who abuse substances or whether policies focus more on control and punishment can also be thought of as more reflective of the general welfare state tendencies of a nation, as the decision to favor one policy over another reflects broader views of the rights, responsibilities, and expectations of citizens. Rehabilitative policies that fall under the welfare state umbrella generally stem from the idea that persons with addiction are facing a medical, non-moral issue and that demand for substances will respond best to therapeutic approaches, whereas correctional policies develop out of a belief that deterrence and punishment are most effective in decreasing the supply of substances.

Welfare states. As discussed in Chapter 1, the idea of social construction is the primary theoretical framework of choice for the current analysis; other theories about the development of the welfare state also exist, however, and are briefly summarized below. Welfare states can be examined from a number of dimensions. Titmuss has suggested that welfare states be understood using a framework that examines the distinction between residual and institutional welfare states. Residual welfare states assume responsibility

only when the family or market fails and seek to limit their commitments to marginal and deserving social groups. Benefits are more targeted and less generous in residual welfare states compared to benefits provided in institutional welfare states. Institutional welfare states provide more universal and more generous services, with less eligibility restrictions, to the entire population, embodying an institutionalized commitment to welfare (Esping-Anderson, 1990).

States can alternatively be categorized as either commodifying or de-commodifying. The term commodifying describes states in which the welfare of individuals is entirely dependent upon economic market forces, whereas de-commodifying describes states where social rights are less dependent on participation in the market economy. De-commodifying states provide more universal systems of benefits with fewer eligibility restrictions and allow “citizens to freely, and without loss of job, income, or general welfare, opt out of work when they themselves consider it necessary” (Esping-Anderson, 1990, 23). In contrast, commodifying states typically place greater responsibility upon citizens to be active participants in the labor market (Huo et al., 2006).

Welfare states can also be viewed from a moral framework, delineating between deserving and undeserving citizens, as discussed in Chapter 1. Such distinctions reflect fundamental moral and political questions about citizenship and equality, with programs and policies reinforcing socially constructed views of who does and who does not deserve public services. As Munger (1998, 932) notes:

What government provides, or fails to provide, for our poor is closely related to our understanding of governmental responsibility for the well-being of all citizens

and thus has profound implications for the nature of community and the meaning of citizenship.

Handler and Hasenfeld (1997), in their discussion of programs to assist the poor, note that such programs make distinctions between the deserving and undeserving poor in an attempt to maintain the availability and discipline of the labor force (Munger, 1998). Handler and Hasenfeld posit that the deserving poor are identified by a limited number of characteristics that morally excuse them from work, principally disability, infancy, and old age, but that most other persons in poverty are judged morally lacking and are targeted as in need of moral rehabilitation by welfare programs. Rather than focusing on providing a social right to equality by working to support structural changes in the labor market, programs attempt instead to change the poor person (Munger, 1998). This moral view of welfare state development places the blame for any failure of welfare policies in the hands of beneficiaries. Such a view underlies claims that recipients of family welfare assistance in the US are persons who do not wish to work, conveniently stigmatizing these beneficiaries and using them as scapegoats for failing to take advantage of the opportunities provided through the welfare state (Munger, 1998).

Dimensions of security and equality can also be used to categorize welfare states. Flora and Heidenheimer (1981) view the development of welfare states in relation to the economic insecurities that arise from living in an industrial society. They note that welfare policies expand in relation to economic expansion and that when economic expansion ceases, welfare policies are denigrated as the major drain on economic growth (Critzler, 1983). At the very point where welfare policies are most in need, such policies

are often targeted for cutbacks. In their view, the modern welfare state has been used not to ensure economic equality for all but to ensure socioeconomic security for those who have participated in the labor market.

Others have proposed a more concrete view of what influences the development of welfare states. Allmendinger (1994) and Pampel and Williamson (1989) find that the number of aged and the age structure within a nation are the most important influences on the growth of modern welfare state spending, with proportionately higher numbers of elderly driving the expansion of the welfare state. Class, class-based politics, and state structure are also important determinants of welfare state growth. More developed nations typically provide better preventative and acute health care services, resulting in proportionately higher numbers of persons of advanced age. Such nations are thus more likely to have larger welfare states as the economic needs of this segment of the population grow.

In addition to the main theoretical focus of social construction utilized in this dissertation, applying the different typologies discussed above to an examination of disability benefits and substance abuse programs can also provide additional insight. Residual welfare states likely have tighter eligibility criteria for disability programs and would therefore be less apt to provide services and supports to persons who abuse substances if such persons were viewed as undeserving of benefits. Institutional welfare states, being more inclusive, would be more likely to provide services to persons with a wider range of disabling conditions, including substance abuse. Examined from a commodification angle, decommodifying states would more strongly support having

persons with substance abuse temporarily separate from the labor force in order to participate in needed treatment.

As mentioned previously, while each of these different views of the welfare state adds value, this dissertation is framed using the social construction theory of the welfare state. The changing nature of the welfare state can be tied to the changing social constructions of benefit recipients. Whereas benefit recipients were once perceived as passively accepting help from the welfare state, benefit recipients are now more likely to be expected to actively cooperate with welfare agency requirements. As mentioned in Chapter 1, a number of nations have recently experienced a shift from programs that provided services and support solely on the basis of need to programs that provide services and support in exchange for the performance of certain expected behaviors on the parts of recipients. Sometimes referred to as social engineering, such actions target programs towards certain individuals and link eligibility for benefits to socially approved behavioral criteria (Gilbert, 2004). Many of the behaviors currently expected in exchange for disability benefits, both within the US and within other countries, are related to participation in the labor market, emphasizing a shift towards higher levels of commodification. In general, comparative analyses have found that, amongst the focal countries, the Netherlands, Norway, and Sweden have been welfare-state leaders that have provided the highest level of supports. In contrast, Canada, Japan, the UK, and the US have been deemed followers and laggards in terms of welfare state development. Germany has fallen somewhere in between the two extremes (Wilensky et al., 1985).

The purpose of this chapter is to explore how issues of substance abuse are addressed within the US and other national disability systems given changing social constructions about benefit recipients. The general hypothesis to be tested is that states with less favorable social constructions of substance abuse will be less likely to offer disability benefits to persons with substance use disorders. Definitions of disability and substance abuse can differ within countries, across countries, and across data sets (Fujiura & Rutkowski-Kmitta, 2001; Mayer, 1995; Mitra, 2004) yet available evidence about both disability and substance use among national populations illuminates the commonality of issues facing these nations. Nine countries will provide the focus for this analysis: Australia, Canada, Germany, Japan, Netherlands, Norway, South Africa, Sweden, and the UK. The countries were selected to provide a relatively diverse mix of programs and experiences and because the researcher had access to key informants and in-depth information about current policies in these countries. Although these countries have diverse institutional structures, each has some form of public disability benefit system and each has faced similar choices in developing ways to address substance use issues. Results will be summarized and compared to policies in the US, as a means to uncovering how these countries differ from or are similar to the US in the ways they have chosen to address substance abuse within their disability benefit systems.

Disability programs. All of the countries involved in this study have attempted to address issues of economic security for persons with disabilities within their populations. Uncovering exactly comparable disability prevalence rates among countries is challenging because: 1) definitions of disability differ among nations and, 2) disability

prevalence is associated with a multitude of background or individual factors, such as cohort (Lynch, 2003), gender (Von Strauss, Aguerro-Torres, Kareholt, Winblad, and Fratiglioni, 2003), race, living arrangements and wealth (Heiss, Hurd, & Börsch-Supan, 2003). Available information on disability prevalence among countries provides a general sense, however, that rates of disability are relatively similar among different countries, as shown in Table 2.1, ranging from 11 percent to 21 percent for similarly measured rates of disability (Mitra, 2004; Government of Canada, 2003). Information available for Japan and South Africa, drawn from data in which disability is defined in relation to impairments, find that only five percent of adults in Japan (excluding those with mental illness) and five percent of adults in South Africa reported impairments (Mitra, 2004)⁹.

The employment rates of persons with disabilities are of interest given the recent international shift towards encouraging employment among this population. As depicted in Table 2.1, available data suggest that, not surprisingly, employment rates for persons with disabilities are substantially lower than employment rates for persons who are not disabled. The cause for these low rates may be attributed to many reasons including the limitations inherent in certain disabling conditions, a lack of employer interest in either hiring or accommodating persons with disabilities, or the disincentive effects of disability

⁹Disability prevalence is lower in low-income countries, such as South Africa, than for higher income countries, and disability rates also generally rise in relationship to gross national product (Fujiura & Rutkowski-Kmitta, 2001). Disability prevalence is lower in low-income countries because mortality rates are higher. Conditions which might have resulted in death in a low-income country have better outcomes in wealthier countries that can dedicate a larger share of their resources towards necessary health care (Mitra, 2005). Differences in survey design, scope, and reporting may also contribute to lower observed rates.

benefit systems on decisions to pursue employment. Two exceptions to the overall pattern include Norway and Australia.

Table 2.1 International disability prevalence and employment rates

	Disability	Employment of persons with disabilities	Employment of persons without disabilities
Australia	13%	61-66%	70%
Canada	13%	44%	74%
Germany	18%	45%	64%
Japan	5%**	23%	60%
Netherlands	19%	40%	61%
Norway	17%	62%	81%
South Africa	5%*	19%	40%
Sweden	21%	51%	70%
United Kingdom	18%	39%	68%
United States	11%	48%	80%

*Based on 2001 data related to impairment questions

**Based on 2001 data related to impairment questions and excludes persons with mental illness

Sources: Mitra, 2004; Government of Canada, 2003; Bill et al., 2004

Substance use policies. Substance use, abuse and control are also common concerns among nations as the toll of substance abuse taxes health care and criminal justice systems. The prevalence of use and abuse differs by type of substance and among countries. Table 2.2, as an example, presents past year alcohol dependence rates by

gender and age and select illicit drug abuse prevalence rates for each of the focal countries for different age groups. No country is immune to the problems associated with substance use. South Africa has the highest rates of past year alcohol dependence, Canada has the highest rates of past year cannabis abuse, and the US has the highest rates of past year cocaine abuse.

Substance use is an international matter, with substances often being produced in one country, transported through other countries, and consumed in yet another country. US authorities have characterized the US, for example, as a major consumer of cocaine shipped from Columbia through Mexico and the Caribbean; a consumer of heroin, marijuana, and methamphetamine from Mexico; and a consumer of high quality Southeast Asian heroin. Yet the US is also recognized as an illicit producer of cannabis, marijuana, depressants, stimulants, hallucinogens, and methamphetamine (CIA, 2005). The Netherlands has been found to be a major producer of ecstasy for both Europe and the US and to be an important gateway for cocaine, heroin, and hashish entering Europe (CIA, 2005). Germany is a source of precursor chemicals for South American cocaine processors; transshipment point for and consumer of Asian heroin, Latin American cocaine, and European-produced synthetic drugs (CIA, 2005, 1).

Table 2.2 Comparative rates of alcohol dependence and illicit drug abuse

	Past year alcohol dependence (%)		Age groups (Year)	Past year cannabis abuse (%)	Past year cocaine abuse (%)	Age groups (Year)
	M	F				
Australia	5.2	1.8	18 and older (1997)	13.3	1.2	15-64 (2004)
Canada	14.0	4.5	15 and older (2002)	16.8	2.3	15-64 (2004)
Germany	6.0*	1.5*	Age 18-64 (1996/1997)	6.9	1.0	18-59 (2003)
Japan	8.4*	.7*	20 and older (1997-1999)	.1	<.1 [^]	15-64 (2003)
Netherlands	6.1	1.1	Age 18-64 (1996)	6.1	1.1	15-64 (2004)
Norway	9.7**	3.5**	Age 20-64 (1999)	4.6	.8	15-64 (2004)
S. Africa	27.6	9.9	15 and older (1998)	8.4 [^]	.8 [^]	15-64 (2003)
Sweden	4.0**	3.3**	Age 16-75 (2002)	2.2	.2 [^]	15-64 (2003)
UK	7.5	2.1	Age 16-65 (2000)	10.8	2.4	16-59 (2004)
US	10.8	4.8	12 and older (2002)	12.6	2.8	15-64 (2004)

*Lifetime prevalence **Heavy drinkers [^] UNODC estimates based on local studies, special population group studies, and/or law enforcement agency assessments

Sources: World Health Organization, 2006; United Nations Office on Drugs and Crime, 2006

Because the use of psychoactive substances results in a variety of social and health consequences, both immediate and chronic, to both the substance user and others, a number of service systems must work in concert to address these concerns. As Room (2005, 146) notes:

Physicians and hospitals deal with illness, psychiatrists and mental illness clinics specifically with mental illness, police and judges with crime, welfare workers and social welfare with disability or destitution, priests and churches with sin. Problems with alcohol or drugs sometimes fall between these jurisdictions, but more commonly fall into areas of shared jurisdiction.

While nations typically employ multiple approaches to addressing issues of substance use and abuse, certain types of practices are often favored over other methods. Countries are faced with a choice among punishment versus therapy, both, or neither (Gerevich, 2005, 454). These different approaches can be categorized as either supply-side or demand-side. Supply-side approaches favor a criminal justice orientation to reducing the availability of substances. Demand-side policies favor a public health approach to reducing individual-level demand for substances by implementing prevention and treatment programs.

Within most countries, a stigma is attached to certain levels of substance use. Stigma has been defined as “disqualification from social acceptance, derogation, marginalization and ostracism as the result of societal negative attitudes, feelings, perceptions, representations and acts of discrimination” (Room, 2005, 144). The attachment of such a stigma is an embodiment of the negative social construction of substance abuse and can result in a designation of undeserving of public assistance within the welfare state. The level of stigma attached to substance use and substance abuse varies among countries and by the type of substance being used. Not all substance use is met with the attachment of stigma. In many developed countries, for example, alcohol use is closely associated with many positively valued and high-prestige activities and statuses. Conversely, some aspects of substance use, such as drunk driving, seem to attract near-universal stigma (Room, 2005). Disapproval for substance using behavior may be expressed by families and friends, social agents, and local and national governments. Governments can express disapproval in the form of state sanctions, up to

and including being deprived of life, liberty or property (Room, 2005). In addition to traditional criminal justice approaches such as fines or imprisonment, some countries have enacted laws that extend the consequences of substance use involvement into other areas of life. The US has several such laws, including one which states that a family should be evicted from public housing if any member of the family is associated with drug dealing and another law that imposes a lifetime ban on nutritional and income assistance (Food Stamps and Temporary Assistance to Needy Families aid) to individuals convicted of drug-related felonies (Room, 2005; Metsch and Pollack, 2005).

Some argue that the societal disapproval embodied in such laws stems from ideas that the users' own behavior contributed to their illness, as Olsen et al. found in studies conducted in Britain, the US, and Australia. Such a belief has caused some to describe substance abuse as one of the "diseases of the will", a decidedly negative social construction. Policies that have risen from such a viewpoint obviously do not justify state intervention to assist the individual who is abusing substances. Responsibility for any ill effects is placed solely on the individual. Certain public policy initiatives aimed at persons with substance use problems thus justify their provisions by the need to send a message about what is and what is not considered acceptable behavior (Room, 2005). Whether or not disability program philosophies coincide with this message about what is acceptable behavior in terms of substance use is of interest in the current analysis, as it is related to the idea of who is deserving of support from the welfare state.

DATA AND METHODS

Research design and data collection. Qualitative research methods are most appropriate when the research purpose is to answer “how” particular programs or policies function (Yin, 2003). Given that the goal of this analysis is to understand how public disability systems intersect with substance abuse policies, a case-oriented rather than a variable-oriented analysis strategy was chosen (Huberman and Miles, 1998; Ragin, 1999). Case-oriented approaches allow for more in-depth exploration into the broad policies and practices of particular systems, compared to variable-oriented analytical strategies that focus more on categorizing and comparing the individual characteristics of systems. Although case-study research can incorporate both qualitative and quantitative methods, the research conducted in this chapter relies on qualitative methods that allow for a more in-depth inquiry into programs and policies of selected countries. A multiple-case study design was used to organize the collection and analysis of information about the public disability programs and substance abuse policies in each country. Public disability programs and substance abuse policies were designated as the primary units of analysis. Two forms of data collection were employed: one set of data were collected from a review of existing documents; the other set of information came from key informants in the various countries.

Documentary evidence. Data collection began with the compilation of a wide variety of documents, including policies, reports, articles and public agency informational materials available via English-language government Internet sites. Broad data searches on specific programs were combined with more in-depth searches for specific language,

such as “substance abuse”, within texts relating to disability policy. The documents that were collected and analyzed for each program provided useful background for the information gathering that occurred during the key informant contacts.

Key informants. Key informants were contacted to triangulate the results of the document analysis and to enhance understanding of different disability program and substance abuse policies and procedures. These informants were primarily persons familiar with public disability policies and were therefore able to provide a level of practical detail that enhanced the information obtained through documentary evidence. The author sent introductory contacts via an e-mail that included a brief introduction to the project, a request for cooperation, and several open-ended questions to begin an e-mail dialogue. An example of this e-mail is included as Exhibit 2.1.

Exhibit 2.1 Introductory e-mail sent to key informants

Hello - I'm working on my doctoral dissertation at Rutgers University in the US. As part of this project, I'm gathering information on how public disability benefit systems and substance abuse policies intersect in different countries.

Within (country), is substance abuse (alcohol or other drug use, abuse, or dependence) considered a disabling condition in terms of eligibility for public disability benefits?

If so, are persons who receive benefits on the basis of substance abuse required to participate in substance abuse treatment? If yes, how is cooperation in treatment monitored?

If there is someone else who you think would be more helpful in discussing these issues further, please feel free to forward this email.

Thanks for your help,
 Deb Brucker
 PhD Candidate
 Bloustein School of Planning and Public Policy
 Rutgers University
 New Brunswick, NJ 08901

At times, persons who were initially contacted forwarded the e-mail to more appropriate persons for reply. Follow-up contacts occurred by e-mail and allowed for the collection of more detailed information. The names, titles, and respective agencies of the contacts are included in Table 2.3. Some key informants sent follow-up information, including clarifications of policies. Eight of the nine focal countries had key informants who were responsive. The key informant data was then collated with the document evidence.

Data analysis. With qualitative research, the data analysis process is somewhat more iterative and reflexive than the process used in quantitative analyses (Marshall and Rossman, 1999). To attempt to develop relevant typologies of the data, the information was first organized into specific categories. Through compilation and continual review of the data, the researcher began to note emerging patterns and themes in the data. Rather than trying to separately describe the analytical results for the disability and substance abuse programs within each country, conceptual ordering was used to organize the large amount of qualitative data that was collected. Conceptual ordering refers to the organization of data into discrete categories or ratings according to their properties and dimensions and then using description to clarify those categories (Strauss and Corbin, 1998). When this approach to the case study data for programs in the ten countries was applied, certain overarching patterns emerged.

Table 2.3 Key informant contacts

Country	Name, Title	Agency
<i>Australia</i>	Drug Info	Australian Drug Foundation Melbourne, Australia
	Jack Frisch, Lecturer, Visiting Fellow	School of Economics University of New South Wales
<i>Canada</i>	Karen Palmer, Information Specialist	Canadian Centre on Substance Abuse, Ottawa
<i>Germany</i>	Martin Schmollinger, Executive Director	German Society for Rehabilitation of People with Disabilities
<i>Japan</i>	Chikako Kohyama	Japan Organization for the Employment of Elderly and Persons with Disabilities
<i>Netherlands</i>	Wilco Eindhoven, Public Enquiry Officer	Ministry of Social Affairs and Employment
	Annette van der Heijden	Public Information Unit Ministry of Health Welfare and Sport
<i>Norway</i>	(None)	
<i>South Africa</i>	Leslie Swartz, Professor	Dept of Psychology U. of Stellenbosch Cape Town, SA
<i>Sweden</i>	Heini Möller, Head	Unit of Disability Affairs, National Social Insurance Board
<i>UK</i>	Patricia Thornton, Senior Research Fellow	Social Policy Research Unit University of York

RESULTS

With the exception of the US, each of the focal countries currently allows disability benefits for persons with primary disorders of substance use. However, the specific eligibility requirements of their disability programs are different. The social construction of substance abuse, while negative, generally lends itself towards the adoption of public health policies over more punitive approaches. Even though a certain level of stigma is attached to substance abuse within each of the countries, the social construction of persons with disabilities as deserving of public assistance is strong enough within these countries to allow for the provision of this level of support. Recall that prior to 1996, the US also provided disability benefits on the basis of substance abuse but that for the past decade or so benefits were not allowed for this diagnosis. Detailed results are discussed below within the context of the overarching types of disability systems and substance abuse policies in existence within each country.

Types of disability programs. While national disability programs may address any of a host of needs, including access to education or health care, programs that provide income replacement or assistance are of interest here. Such programs may differ both within and across countries on a number of factors including whether programs are developed as insurance or assistance, whether benefits are provided on a permanent or temporary basis, and whether benefits are provided for a total disability or a partial disability. Table 2.4 summarizes these distinctions.

Table 2.4 Public disability program characteristics

	Assistance	Insurance	Permanent	Temporary	Total	Partial
Australia	X		X	X	X	
Canada	X	X	X		X	
Germany	X	X		X	X	X
Japan		X	X		X	X
Netherlands	X	X	X		X	X
Norway	X	X	X	X	X	X
S Africa		X	X		X	
Sweden	X	X	X	X		X
UK			X		X	
US	X	X	X		X	

Insurance and assistance. Eligibility for disability benefit programs may be contingent on prior labor force participation. Such programs attempt to replace income lost by persons who have either been removed from or have been required to limit their involvement in the labor market due to their disabling condition. Other programs are solely need based and do not require a prior attachment to the labor force. Within the US, these two different types of programs are fully funded by the government through taxation of employers and employees and are differentiated as insurance (i.e. Social Security disability insurance) versus assistance (i.e. Social Security Supplemental Security Income). The split between insurance and assistance in the US has been

described as epitomizing the distinction between programs for the deserving and undeserving poor (Clarke and Piven, 2001), with those who have adequately participated in the labor market deemed deserving and those who have not been attached to the labor force deemed less deserving. In general, benefits awarded for insurance are higher than benefits awarded for assistance, reflecting a more commodifying, residual state that places higher rewards on those who have participated in the labor market.

Canada, Germany, the Netherlands, Norway and Sweden offer both insurance and assistance disability programs (Dean, Prins, and Veerman, 2004; Dean and Mörk, 2004; Ministry of Foreign Affairs, 2006; Mitra et al., 2004; Liesering, 2001). The social insurance program in Canada, for example, provides income replacement to working aged persons who have long term disabilities and were previously attached to the labor force. Canada also provides unemployment insurance benefits for persons with short-term disabilities. General social assistance or welfare is available through the provinces (Government of Canada, 2003, 2006). Similarly, Sweden offers both means-tested and insured long-term programs, providing partial benefits for those unable to work because of disability. In addition, the Swedish system provides a short-term sickness benefit to workers (Szymendera and Möller, 2004, 222).

South Africa, Japan and Australia depart from this dual system approach. In South Africa, the primary long-term disability income program is the Permanent Disability Grant, a non-contributory, means-tested program that is intended to provide monetary support to adults with disabilities who cannot work. Support is provided until these beneficiaries enter the retirement pension system (Szymendera and Swartz, 2004; Lund,

2001). South Africa also provides the Social Relief of Distress program, a more temporary program that provides income and transportation assistance to persons unable to work because of disability for periods under six months, persons awaiting permanent disability grant status, or persons affected by a recent family death or natural disaster (Szymendera and Swartz, 2004, 215). The Australian disability benefit system is also based purely on a social assistance or welfare model, rather than social insurance. All of the Australian social support systems, including those related to disability, are funded through general revenue and have eligibility criteria that are based on income and assets (Clayton and Honeycutt, 2004).

In contrast to other countries, Japan's long-term disability pensions do not define disability in relation to work and income. Medical conditions are listed under seven different grades that reflect the severity of the impairment. Only persons with first, second, or third grade disabilities are eligible for a permanent pension and pensions are paid by employers (Mitra, 2004, 35). In addition to providing access to medical care, national health insurance provides short-term income support for individuals who become too ill to work. Employment insurance is also available for those who are insured, unemployed, and become unable to work due to an illness or non-work related injury, while regular unemployment benefits are extended for persons with disabilities who are ready to work (Honeycutt, Terashima and Kohyama, 2004, 153).

Permanent and temporary benefits. Permanent benefits are generally awarded to working aged adults until they are able to access retirement systems, assuming other eligibility criteria continue to be met. In contrast, temporary benefits are of a shorter

duration. Temporary benefits can be of two types: sickness benefits or time-limited benefits. Sickness benefits are short-term income support benefits that are mandated to be provided by employers. Time-limited benefits last from one to four years, typically starting after sickness benefits have ended (Mitra, 2004). Countries may offer a combination of both permanent and temporary types of benefits, targeted towards different groups of people. The decision to provide permanent or temporary forms of disability benefits essentially hinges on whether disability is viewed as either a static or fluctuating condition.

Australia, Norway and Sweden offer both permanent and temporary forms of benefits (Clayton and Honeycutt, 2004; Dean and Mörk, 2004; Szymendera and Moller, 2004). In Norway, for example, individuals apply for an unspecified benefit and the national insurance office makes the ultimate decision as to which type of benefit is provided. The time-limited benefit is granted for a period of one to four years if there is any possibility for improved work capacity in the future; if not, the disability pension is granted (Dean and Mörk, 2004, 200-201). Before either a disability pension or time-limited benefit can be awarded, however, vocational rehabilitation must be attempted. Medical and vocational rehabilitation cash allowances are authorized under various sections of the National Insurance Act to provide income maintenance for persons who are undergoing active treatment with prospects of improving their vocational potential (Dean and Mörk, 2004, 208).

Total and partial benefits. Total disability benefits are awarded based on a dichotomous decision as to whether or not an individual is disabled or not. Partial

disability benefit programs offer different benefit amounts based on the severity of the disabling condition. The two types of programs are distinct and systems are developed using either one of these frameworks. Whereas a total disability benefit program would offer a full benefit to a person determined to have a disability, a partial disability program would attempt to determine the degree of the disabling condition prior to determining the appropriate benefit amount. For example, a program that determines that a person has lost fifty percent of their earnings capacity would offer a fifty percent benefit. The two US programs currently provide total disability benefits.

The distinction between total and partial benefits is based on whether a disabling condition is viewed either as fully limiting participation in the labor force or as only partially limiting participation in the labor force. Germany, Japan, the Netherlands, and Norway provide both total and partial types of benefits. In Norway, for example, pensions are reduced in proportion to the loss of earnings capacity, with both pension and time-limited benefit payments ranging from 50 to 100 percent in intervals of five percent (Dean and Mörk, 2004, 202). Other countries, including Australia, Canada, South Africa, the UK, and the US, offer only total benefits. As partial benefit programs offer lower income replacement rates than total benefit programs, substantially more partial disability benefit recipients participate in work than total benefit recipients (Mitra, 2004; Mitra, Coren, and Thornton, 2004).

Challenges and reforms. In an effort to contain costs, most of the industrialized countries have recently narrowed eligibility to both social insurance and social assistance disability programs (Gilbert, 2004). In a related manner, many countries have introduced

expectations that clients will participate in work-related activities and have introduced measures to increase the rate of exit from program rolls (Salonen, 2001). All of these changes can be viewed within a social construction framework. Tightening eligibility requirements, for example, essentially changes the definition of who is deserving of benefits.

Eligibility for benefits has been narrowed in different ways. Some countries have narrowed definitions of disability, as the US did with its passage of the Contract with America Act in 1996. Countries such as the Netherlands, Norway, and the US have attempted to increase the rate of exit from the disability rolls by increasing the frequency of re-examinations of claimants and by assessing eligibility status in light of new, more rigorous criteria to define degrees of disability. Other countries have changed the financial requirements for eligibility by either requiring higher levels of contribution to insurance systems or by reducing income and asset eligibility levels. In 1998, for example, Canada extended the period of contribution required to qualify for its disability pension (Gilbert, 2004).

The creation of work incentives is another way that governments are trying to reduce expenditures on disability benefits. Again, this relates to the changing social construction of disability as an expectation for active participation within social programs becomes more the norm. As Gilbert (2004, 79) states:

Efforts to design work incentives have been around for as long as people have thought about the provision of welfare benefits. What distinguishes the current stream of work-oriented measures are the remarkable convergence of liberal and conservative opinion that these incentives are necessary; the assortment of incentives and range of program areas in which they are employed; and the

conviction that the proper mix of incentives will produce the desired results, a heightened regard for the efficacy of social engineering.

Some countries have opted to implement time-limited benefits, essentially shortening the amount of time beneficiaries can be involved with the disability system. Beginning in the year 2000, for example, disability payments in Germany were awarded as temporary benefits rather than permanent pensions (Gilbert, 2004).

The UK has implemented a number of reforms in recent years, including policies that attempt to remove economic disincentives to employment and programs that incorporate a strong focus on return to work (Mitra, Coren, and Thornton, 2004). Sweden has implemented a system whereby persons above and below the age of 30 are treated differently, with younger beneficiaries enrolled in a program designed to be a temporary program as they are transitioned back to work, while older persons with disabilities receive compensation for the duration of their period of disability (Szymendera and Moller, 2004). Similar reforms have occurred in the Netherlands, with policies now aimed at getting people back to work so that the future affordability of the system can be assured. The emphasis is on labor capability rather than disability, the aim being to stimulate people to return to work as soon as they are fit again, or to find full- or part-time work adapted to their occupational disability (Ministry of Social Affairs and Employment, 2006).

Australia has adopted two approaches to attempt to reduce disability benefit program expenditures. First, some reforms have focused on facilitating employment among persons with disabilities. Second, reforms have attempted to slow the growth in

the number of people receiving the Disability Support Pension by tightening eligibility criteria. New assessment tools have been developed to appraise work capacity and support needs and a “disability employment gateway” has been developed to direct job seekers to employment assistance services. A greater focus on rehabilitation, retraining and employment support has also been implemented (Bill et al., 2004).

In the face of this new construct in which persons with disabilities are expected to pursue employment, countries have developed different systems to support persons with disabilities who are attempting to return to work. In the Netherlands, employers and employees have jointly held this responsibility since 2002. The Gatekeeper Improvement Act sets out the steps the employer and employee must take to get the sick employee back to work again as soon as possible. If their efforts are not successful, the social security agency will then consider the employee’s application for a disability benefit. If, however, the action plan is not available or if it becomes clear that the parties have not taken all the necessary steps, the social security agency can refuse to accept the application for benefits (Ministry of Social Affairs and Employment, 2006).

In Sweden, the primary responsibility for providing rehabilitation and return to work services to those receiving sickness benefits lies with the employer. Under terms of the Social Security Law, employers must review all cases in which their employees have been out of work for four weeks to determine what possibilities exist for vocational rehabilitation (Szymendera and Möller, 2004). Other countries also place a strong emphasis on having employer involvement in addressing issues of disability. The UK, for

example, has an employer-funded temporary disability program (Mitra, Coren, and Thornton, 2004).

This brief review of disability programs demonstrates how programs can differ on a number of dimensions and provides some context for understanding how substance use disorders may or may not fit into the scope of such programs. The changing social construction of disability has placed new expectations on both the administrators of and the participants in disability benefit programs. Before examining exactly how these evolving disability programs address issues of substance use, a concise appraisal of substance use policies is provided.

Types of substance use policies. As mentioned earlier, countries may adopt a mixture of supply-side and demand-side approaches to address issues of substance use. Supply-side approaches, based on a belief that use and abuse of substances can be best controlled through the deterrent and educational functions of punishment, favor use of criminal justice tactics to address the production, distribution and sale of substances (Bollinger, 2004). The US predominantly promotes a punitive view of drug use, labeling substance abuse a deviant behavior. Over thirty years ago, the US took the lead in developing supply-side drug conventions at the United Nations and strongly encouraged other nations to adopt a similar stance (Bullington, 2004). More recently, in 1988, a major international treaty was developed that criminalized certain substance use related behaviors and that urged all countries who signed it to criminalize users, producers and traffickers of psychoactive substances (The Ministry of Foreign Affairs of Japan, 2006). Embracing such a supply-side approach is in keeping with the idea that persons involved

with substance use are deserving of punishment, not social assistance, and that the criminal justice arena is more suitable than the welfare environment in dealing with substance abuse. The social construction of substance abuse is decidedly negative.

In contrast to the US, other countries have more strongly embraced demand side approaches to addressing issues of substance use and abuse. Countries such as Australia, Canada, Germany, the Netherlands, Sweden, and the UK have recently begun to challenge the US-supported supply-side approach in favor of public health approaches that are operationalized in different ways (Bullington, 2004; Goldberg, 2004). These public health or harm reduction approaches are designed to minimize the individual and societal harms associated with problematic use by providing prevention, education and treatment services (Bullington, 2004), advocating the idea that individuals who are abusing substances are more deserving of social and health care assistance than of attention from the criminal justice system (Bullington, 2004). Under a medicalization model, certain substances are prescribed to those who are diagnosed as suffering from an addictive disease as a form of treatment. As examples, naltrexone may be prescribed to persons with alcohol dependence or buprenorphine may be prescribed to persons with opioid dependence in an effort to reduce relapse. Under an acceptance model, as seen in Germany, the decision to consume potentially dangerous substances is left to the self-responsible user. Regulation is limited to drug prevention and education and consumer protection is given in the form of a drug monitoring system that can be used to test the purity of substances, and health measures (Bollinger, 2004).

Some countries have gone as far as opting to decriminalize certain substances, replacing criminal penalties with fines, diversion, warnings, or no action at all. Others have adopted informal practices that reduce or eliminate punishments for obtaining and possessing small amounts of illicit drugs (Bullington, 2004; Dorn, 2004; Bollinger, 2004). The social construction of substance abuse is less negative than the view held in the US. Even where certain levels of substance use are viewed as undesirable, the chosen solutions for these problems are less punitive in nature. The Dutch system supports the idea that drug use first needs to be addressed as a public health question and only secondarily as a criminal justice one, in keeping with their very liberal drug policies (Bullington, 2004; Uitermark, 2004). The Dutch allow, for example, the sale of hashish and marijuana from coffee shops and have implemented a monitoring system so that ecstasy users can have the purity of their pills tested (Uitermark, 2004). Canada has begun to liberalize its approach to drugs as well, allowing the establishment of heroin injection rooms in Vancouver, the production and marketing of high quality cannabis in British Columbia, the provision of medical cannabis to patients suffering from a variety of diseases, and, more recently, has entertained discussions about dramatically altering the practices with regard to cannabis law enforcement directed against users (Bullington, 2004).

Australia has developed public health strategies within a strong law enforcement regime, yet still has ambivalence as to whether or not to fully embrace the adoption of harm reduction measures such as methadone treatment for heroin users (Bammer et al., 2002). Scandinavian countries such as Norway and Sweden are known to be both tough

on addiction but also compassionate in the services provided to those with substance use disorders (Mooney, 2005; Goldberg, 2004). They combine aggressive enforcement and treatment with income support, availability of good free drug treatment (and perhaps other health care), needle exchange, safe injection rooms and other public health measures aimed at controlling infectious diseases spread. Substance abuse in and of itself is not a punishable offense (Mooney, 2005; Goldberg, 2004; Ministry of Foreign Affairs, 2006).

The specific types of substance use policies favored within countries are reflective of normative views about substance use, just as disability policies reflect dominant social views of disability. In a general sense, the two constructs belong within two different cells within the matrix proposed by Schneider and Ingram (1993), with persons with disabilities generally considered a politically weak yet deserving group and with persons with substance use disorders considered a politically weak and undeserving group of citizens. Yet within disability programs, these two populations may intersect, creating an interesting mix of two very different social constructions. The following section describes how issues of substance use are or are not addressed with the focal public disability programs.

Public disability benefit programs and substance use disorders. Each of the nine focal countries in this comparative study provides disability benefits to persons with substance use disorders if certain eligibility criteria are met. For some countries, such an allowance of benefits is possible because the definition of disability does not hinge on the existence of a particular set of diagnoses. Rather, within these countries, benefits are

awarded based primarily on diminished work capacity; the issue of substance use does not explicitly enter into play. The UK public disability benefit system, for example, does not include qualification criteria that are specific to impairments or conditions. Since there is no list of conditions that do or do not qualify, a person may qualify for disability benefits on the basis of substance abuse so long as the substance abuse affects the person's functional abilities to the degree required in order to get a benefit. There are no requirements to take part in treatment as a condition for receiving benefits on grounds of incapacity for work (Patricia Thornton, personal communication, 2004).

In other countries, substance use is openly acknowledged as a disability. Australia and Canada, for example, have defined disability to include substance use disorders, even beyond the parameters of public disability benefit programs. The Australian Disability Discrimination Act of 1992 broadly defines disability to include drug addiction. Persons with drug addictions may currently qualify for the Disability Support Pension although this is still an issue of debate (Jack Frisch, personal communication, 2005). Within Canada, drug addiction is considered a disability in a growing body of human rights case law (O'Donnell, 2006; Bomhof, 2005). Disability benefits may therefore be awarded for substance use disorders. In addition, as Bomhof (2005, 3) notes, employers may be obligated to:

accommodate the employee in the event the impairment or use reflects a dependence that can be characterized as a disability. In those cases, the courts have interpreted human rights legislation to impose upon the employer a duty to accommodate the employee up to the point of undue hardship. This duty may in turn require the employer to provide the employee with rehabilitative services and, where necessary, to transfer the employee to a position that is less safety intensive.

Japanese citizens can qualify for disability benefits if they have a substance-related disorder that diminishes their capacity for work, as long as a qualified doctor makes a clinical diagnosis according to the International Classification of Diseases, Version 10 (Chapter 5) and/or the Diagnostic and Statistical Manual of the American Psychological Association, Version IV criteria for substance use disorders (Chikako Kohyama, personal communication, 2004).

In Germany, therapy-resistant substance dependence is regarded a chronic illness comparable to permanent disability. Disability allowances, in the form of social assistance, are provided to younger people who are not eligible for a pension claim after several rehabilitation attempts have failed. The allowance is given as long as gainful employment is not advisable or achievable even under conditions of a substitution treatment such as methadone replacement. Persons with substance dependence who have contributed adequately into the social insurance system are eligible for a disability pension if another rehabilitation attempt is unpromising, functional limitations preclude employment and permanent medical conditions such as liver failure are diagnosed. Legally, in regard to health certification for eligibility for disability benefits, no distinction is made in Germany as to which substance is abused. Benefits may be awarded for dependence on a legal drug like alcohol, an illegally obtained prescription drug like barbiturates, or an illegal drug like heroin (Martin Schmollinger, personal communication, 2004).

Some countries set explicit expectations about participation in treatment. Persons applying for benefits in Norway must demonstrate that they have exhausted all medical

and vocational rehabilitation options before being awarded benefits. The Netherlands allows persons to receive disability benefits for substance use disorders as long as other eligibility criteria, including a loss of earnings capacity, are met. In addition, people receiving a disability benefit have to do their best to get well and find a job or cooperate in a work reintegration program or else face a cessation in benefits. Persons with substance use disorders must participate in a detoxification or treatment program. The benefits agency decides the type and intensity of treatment and will pay for treatment if the treatment is not covered by health insurance. The agency providing the treatment reports to the benefits office in case of non-compliance (Wilco Eindhoven, personal communication, 2006).

In South Africa, persons with substance use disorders are eligible for disability benefits as long as the disorder results in an activity limitation. South Africa has recently implemented a new principle, “maximum correction”, within their disability system. “Maximum correction” implies that people must first get treatment for any health condition, including substance abuse, before they are allowed to access benefits (Leslie Swartz, personal communication, 2004). The social construction of substance abuse is primarily as a public health issue. To qualify for permanent disability benefits in South Africa, persons must be adult citizen residents who are unable to work because of a disability, who do not have another government grant, and who have a valid medical report describing the disability. In addition, applicants for benefits are deemed ineligible for benefits if they fall into one of seven disqualifying categories. Applicants may be disqualified if they are residents of a psychiatric hospital, refusing to undergo medical

treatment, give false or misleading information on the application, live in a state-run home or prison, are receiving care from a treatment center, and, of interest here, are being treated for drug addiction (Szymendera and Swartz, 2004). Persons may be considered for disability benefits once treatment is completed.

In Sweden, persons may qualify for disability benefits only if the substance use disorder reduces their capacity to work. If work capacity is reduced at least by a quarter for a time-period of at least one year and vocational rehabilitation measures are exhausted, any insured person can be granted activity compensation (always temporary)(age 19-29), permanent sickness compensation (aged 30-64), or temporary sickness compensation (30-64) (Heini Möller, personal communication, 2005).

Each of the focal countries has in recent years faced challenges within their disability benefit systems as numbers of enrollees have risen and subsequently driven program costs higher. As discussed in Chapter 1, each of these countries has recently experienced a shift in the structure of their safety net programs from programs that award benefits based solely on need to programs that require participation or attempts at participation in the labor market (Gilbert, 2004; Organization for Economic Co-operation and Development, 2003; Esping-Anderson, 1990). The US has also experienced this shift yet the current US public disability benefit system is in stark contrast to these countries in the way that substance use disorders are addressed. Post-1996, substance abuse cannot be the primary disability if attempting to qualify for disability benefits in the US. In addition, there is no requirement for participation in treatment even if substance abuse is noted as a secondary disability.

DISCUSSION

The general hypotheses to be tested in this analysis was that countries with more negative social constructions of substance abuse will be less likely to consider substance abuse a legitimate condition deserving of disability benefits. The results of this analysis support this view, as the US has the strongest prohibitionist approach to substance abuse among the focal countries and is the only country among the sample of countries which does not allow for the provision of disability benefits to those with a primary diagnosis of substance abuse. Persons participating in disability programs are only deserving of benefits if they fit socially acceptable views of disability. The other countries examined each consider persons with substance abuse deserving of assistance from their public disability benefit programs. Some of the countries do not even differentiate substance abuse from other types of health conditions within their disability systems. Others openly acknowledge substance abuse as a disabling condition. In both cases, however, the underlying social construction of substance abuse leans more towards a public health rather than a criminal justice view. Such a belief allows for the provision of disability benefits within the public disability benefit system and, in many cases, provides an opportunity for accessing treatment. Persons with substance use disorders, under the prevailing social construction in the US, are not viewed as legitimately disabled, however, because they are predominantly blamed for their condition.

One could argue that social constructions are tied to levels of commodification within countries and that countries that place a premium on participation in the market would naturally have narrower definitions of acceptable reasons to be separated from the

labor force. The US embraces a moralistic view of welfare state development that targets the provision of services to ensure socioeconomic security. Following this logic, state intervention is warranted only for persons with legitimate disabilities because the market fails to accommodate the employment of persons with disabilities. The strong emphasis on individual rights that exists within the US political system results in an expectation that individuals will take a large measure of responsibility for their personal welfare. Other nations that provide more generous benefits traditionally have more paternalistic types of governments. Citizens expect that these types of governments will provide high levels of services and supports.

Each of the other countries is concurrently experiencing a shift towards higher levels of commodification, however. Whereas in the past, some nations had disability programs that were decidedly more universal than the US program, each has been moving towards more selective types of programs that are more restrictive and have more requirements for seeking treatment and/or employment. Most disability programs are attempting to encourage work among beneficiaries and are attempting to do this by focusing rehabilitation efforts on individuals. Despite the nature and mixture of programs offered, however, whether social insurance or social assistance, permanent or temporary, or full or partial benefits, each of the comparative countries allows access for persons with substance use disorders. Obviously, the manner in which countries define disability impacts whether certain conditions qualify one for benefits or not. As noted above, among some countries, it is not the medical condition per se that is of issue. Rather, it is the impact of that condition on the ability to work. The US disability programs also have

a work-based definition of disability, yet have chosen to eliminate eligibility for benefits for those with substance use disorders.

In addition, many of the other countries have implemented stringent rehabilitation policies within their disability programs and thus have a means to encourage participation in treatment for persons with substance use disorders. Prior to 1996, when US disability programs did allow benefits for substance use disorders, Supplemental Security Income (SSI) recipients with this diagnosis were supposed to participate in treatment. However, the monitoring of cooperation with treatment was lax and ineffective (GAO, 1994). Given the view that SSI is more of a social assistance than a social insurance program, it is interesting to note that participants in the social assistance portion of SSA disability programs were, in theory, expected to conform to treatment directives, whereas participants in the social insurance program (DI) were not. One could argue that social assistance participants were generally viewed as less deserving of assistance and so had additional behavioral requirements placed upon them. At any rate, any distinction between treatment expectations for persons with substance abuse became moot after the passage of the 1996 Act removed the possibility of singling out persons with substance use disorders for treatment directives.

CONCLUSION

The fact that the US stands alone among this group of countries as the only one that does not allow access to disability benefits for persons with a primary diagnosis of substance abuse makes the US a prime case in need of further study. Discerning the

commonalities and differences among the disability systems in the US and other countries provides a context that sets the stage for more detailed analyses and gives rise to a number of questions. Does the fact that the US has determined that persons who abuse substances are not deserving of due consideration within the public disability system have any repercussions for the system itself? Understanding these interrelationships can help determine whether the US should consider adopting similar policies. Given that other national disability systems have instituted reciprocal responsibilities for beneficiaries in terms of treatment and employment participation, what is the relationship among benefit receipt, treatment and employment for disability beneficiaries who do have substance use disorders in the US? The quantitative analyses conducted in the following chapters will explore the extent and effect of substance abuse within the US public disability benefit system, given that the US has essentially chosen to disregard issues of substance abuse within its disability programs. The chapters will empirically explore the actual prevalence of substance use disorders within the US disability programs and will examine the interaction among benefit receipt, substance abuse, treatment and employment to further understanding of this complex issue and determine whether policy changes should be encouraged.

CHAPTER 3
DISABILITY AND SUBSTANCE ABUSE IN THE U.S.

INTRODUCTION

With the passage of the Contract with America Advancement Act of 1996, the United States (US) Social Security Administration (SSA) was no longer allowed to grant disability benefits to persons whose primary diagnosis was one of substance abuse or dependence (Watkins and Podus, 2000). Although SSA no longer legitimizes substance abuse as a disability, a portion of the persons who are currently receiving either Social Security Disability Insurance (DI) or Supplemental Security Income (SSI) benefits on the basis of other medical conditions may in fact continue to struggle with issues of substance abuse. As SSA is currently making a concerted effort to promote employment among its disability program participants so that overall levels of dependence on disability benefits can be reduced, barriers that may affect the attainment of these employment goals are of paramount importance. Substance abuse is one such potential issue.

The purpose of this chapter is to examine the relationship between substance abuse and disability and the relationship between substance abuse and disability benefit receipt. More specifically, this chapter seeks to:

- Test the hypothesis that substance abuse is more prevalent among adults with disabilities than among other persons;

- Test the hypothesis that substance abuse is more prevalent among adult disability beneficiaries than among the general population; and,
- Estimate the extent of substance abuse among adults with disabilities and among disability beneficiaries.

DATA AND METHODS

Data. The Substance Abuse and Mental Health Services Administration (SAMHSA) sponsors the National Survey of Drug Use and Health (NSDUH) on an annual basis. The survey has been called “the primary source of information on substance use by the civilian, non-institutionalized population in the United States” (Kulka et al., 2005, 243). National in scope, the survey can be easily used to provide national level estimates of variables of interest. The survey is conducted in-person using computer assisted interviewing techniques and collects individual level information from households, non-institutional group quarters, and civilians living on military bases. An independent, multistage area probability sample is used to provide estimates for each state and the District of Columbia. Five stages of sampling occur. First, counties are selected. Second, blocks within particular areas are selected. In the third stage, listing units are selected within the sub-areas. Age domains within the sampled listing units are selected in stage four. In the last stage, individuals are interviewed within the sampled age domains (Yacoubian, 2004).

The primary benefits of this data set are that it includes both measures of alcohol and other drug abuse and dependence and, beginning in 2002, questions pertaining to disability. The data have two primary limitations however. First, the information is self-reported. Researchers have found that respondents will alter their responses about sensitive personal issues such as abortion, substance use, or criminal behavior to minimize their reported participation in what are perceived as socially undesirable forms of behavior (Jagannathan, 2001; Turner et al., 1998; Rea and Parker, 1997). Survey administrators have tried different techniques to attempt to address this limitation. Self-administered surveys have been reported to collect substance use rates that are twice as high as those reported through face-to-face data collection surveys (Corkrey and Parkinson, 2002; Turner, Lessler, and Gfroerer, 1992). Drug use surveys that combine interviewing techniques with the collection of biological samples (either urine samples or oral fluids) can better assess response validity (Yacoubian, 2004). A second limitation of the NSDUH is that it is cross-sectional in nature, not allowing for the tracking of individual drug use behaviors over time.

This study will use data from the 2002 and 2003 versions of the survey, as full access to 2004 and more recent data were not available at the time this study was conducted.

Sample. Each year, approximately 70,000 people aged 12 and over are surveyed for the NSDUH. The design includes a disproportionate amount of persons more likely to use substances (youth and young adults). Beginning in 2002, incentive payments were

provided to respondents to increase response rates¹⁰. The weighted overall response rates for the 2002 and 2003 surveys were 71 and 70 percent, respectively (SAMHSA, 2005). The survey over sampled younger adults, included slightly more females than males, and was mostly comprised of white people.

For the analysis conducted here, public use data from the 2002 NSDUH (n=54,079) and the 2003 NSDUH (n=55,230) were first appended and then filtered to only include adults aged 18 and over (n=73,396) (SAMHSA, 2004b). Since our interest here is in laying the groundwork for further analyses in Chapter 4 on the interaction of substance abuse, treatment and employment among disability beneficiaries, the dataset was restricted to include only adults, persons who could be expected to participate in the labor market.

Measures. To provide information on substance abuse and dependence, the NSDUH asks respondents a series of questions that mirror the abuse and dependence criteria listed in *The Diagnostic and Statistical Manual (Version IV)* of the American Psychological Association (APA, 1994). The survey questions have been periodically cognitively tested and reviewed by experts in the field to ensure their validity and reliability (SAMHSA, 2004c). While other published empirical reliability coefficients for this set of questions are not available, reliability analysis performed in this study on questions used to assess alcohol abuse and an example of one type of illicit drug abuse, marijuana abuse, resulted in high Cronbach's reliability coefficients of .926 and .996,

¹⁰ Prior to implementing incentive payments, SAMHSA conducted a controlled experiment to better understand the impact of incentive payments on response rates, data collection costs, and reported substance use rates. Results indicated that incentive payments significantly increased responses rates, decreased data collection costs and had no impact on reported substance use (Kulka et al., 2005).

respectively. The questions pertaining to abuse were designed to cover the four abuse criteria defined in DSM-IV and are included in the Appendix.

The questions pertaining to dependence were also designed to mirror the DSM-IV dependence criteria. The DSM-IV manual defines a person as dependent if he meets three out of seven dependence criteria (for substances with a withdrawal criterion) or three out of six criteria (for substances without a withdrawal criterion), with one additional criterion for each alcohol and marijuana dependence. The survey questions relating to dependence are included in the Appendix. Cronbach's alpha for the alcohol dependence and marijuana dependence questions was 1.000 and .991, respectively.

Dependent variable. All the dependent variables in the study are measured dichotomously – with a value of one signifying either abuse or dependence, and a value of zero indicating no abuse or dependence.

Independent variable. The variable *disabled* was created as the focal independent variable, to identify our population of interest – adults with disabilities. The *disabled* definition used in this analysis is based on self-reported ability to perform work, similar to the definition used in the Current Population Survey. With a work-disabled definition, the ability to perform employment is the primary criterion for assessing disability. Government programs, both here and abroad, use a similar definition as the basis for disability benefit awards (OECD, 2003). The NSDUH includes two questions asking if adults had a physical, emotional, or mental problem that either kept them from work or limited them from work over the past year. Persons who responded positively to these questions comprise our sample of persons with disabilities. One issue with using the

disability screening questions employed above is that some people will likely report substance abuse or dependence as other types of disabilities. People may respond affirmatively that they have a physical, emotional, or mental problem that has impacted their ability to work when their primary condition is one of substance abuse or dependence. To address this issue, the results obtained from using the work-based definition of disability are compared to results obtained from equations including persons who had either reported a physical disability (which is not likely to include substance use conditions) or persons who were determined, through a scale applied within the survey data, to have a serious mental illness (SMI).

Control variables. In order to specifically assess the relationship between disability and substance abuse or dependence, the study also controlled for other variables identified in the relevant literature as affecting probability of substance use, abuse or dependence. The set of control variables include demographic variables, residential variables, survey year identifier, and prior substance use indicators. Demographic variables comprise age, gender, race, marital status, and income. *Age* is measured as a binary variable since only categorical age data was available, with a value of one assigned to persons aged 18 to 25, and a value of zero assigned to persons aged 26 and older. Research indicates that younger adults have higher rates of abuse and dependence than older adults (NIDA, 1991). Dichotomous variables were created for *gender* and *race*, with values of one indicating males and whites, persons more likely to abuse or be dependent on substances (NIDA, 1991; Li and Ford, 1998; Akins et al., 2003). *Marital status* was created as a binary variable as well, with a value of one

indicating persons who were married. *Income* was included as an ordinal variable. Location is measured by residence in metropolitan statistical areas (MSAs). Because persons living in MSAs of fewer than one million people were more likely to abuse or be dependent on substances (NIDA, 1991), the variable *MSA* was created as a binary variable as well. A value of one indicated persons residing in a MSA of fewer than one million people and a value of zero indicated persons living in either a MSA of one million or more people or persons not in a MSA. The public use file of the NSDUH did not include information on region of country, another variable that would have been of interest. A survey year identifier, *source*, was created to indicate which survey year the data was from. A *source* value equal to one indicated year 2002 data. Lastly, variables to indicate persons who had first tried alcohol (*alcohol try*) or illicit drugs (*illicit drug try*) at age thirteen or younger were created, to measure the effect of earlier first time use on later rates of abuse and dependence. Research has shown that persons who use substances earlier in their lives are more likely to later develop abuse or dependence (Kosterman et al., 2000).

The NSDUH measures abuse and dependence based on information reported by respondents as occurring over the past year. Therefore, results reported in the study pertain to data on past year abuse and dependence for alcohol and illicit drugs; i.e., for the years 2001 and 2002.

Analytic strategy. The first part of this analysis uses descriptive techniques to describe the association between substance abuse, disability and disability benefit receipt,

while the second part of the analysis uses multivariate methods to describe the association between substance abuse and disability.

Descriptive analysis. The dataset can be used to both examine the association between substance abuse disorders and disability and to estimate prevalence rates of abuse and dependency. The dataset can easily be used to estimate the proportion of SSI recipients abusing or dependent on alcohol and illicit drugs, as it includes a single variable to measure SSI receipt as well as constructed variables for abuse and dependence. The dataset lacks a well-defined DI benefit variable, however. The NSDUH includes a variable to measure receipt of Social Security or Railroad Retirement income, although it is not possible, due to data limitations, to exactly tease out whether these recipients are receiving DI or retirement income. To address this issue, abuse and dependence proportions were calculated in two different ways: descriptive and multivariate. A commonly used descriptive method for determining receipt of disability benefits compared to retirement benefits within national survey data is to select cases that meet the following criteria: age 18-64 and disabled. This rules out those who are receiving benefits purely for retirement reasons, and adds the presence of disability as a criterion. Percentages were calculated for persons aged 18 to 64 who reported the presence of a disability and receipt of Social Security or Railroad Retirement income.

Multivariate analysis. A better way to establish the association between disability and abuse or dependence and to calculate abuse or dependence estimates is to use multivariate statistical techniques that allow us to simultaneously control for other variables. One such technique is a regression model. A regression model of substance

abuse and dependence among persons with disabilities was developed, using substance abuse as the dependent variable. Since the dependent variables are dichotomous, logistic regression analysis was performed for each type of abuse and dependence. The decision to model abuse or dependence using disability the focal independent variable is based on past research findings and current data limitations. As discussed in the literature review, most of the recent research on disability and substance abuse suggests that the presence of a disability increases the risk of substance abuse (Moore and Li, 1998; Gilson, Chilcoat, Stapleton, 1996; Moore, Greer, and Li, 1994; Moore and Polsgrove, 1991; Heinemann, Goranson, Ginsburg, and Schnoll, 1989). In addition, the NSDUH is not a longitudinal data set that allows for time-ordered analyses and does not provide a level of detail that would allow one to disentangle a possible reciprocal or recursive relationship between disability and substance abuse or their temporal sequence.

The regression models were then used to estimate the proportion of the current DI population abusing or dependent on substances, using what we currently know about the characteristics of the DI population. To better assess the relationship between disability and the occurrence of alcohol or illicit drug abuse or dependence, controlling for other relevant measures, four different multivariate models were developed, one model for each type of abuse or dependence (alcohol abuse, alcohol dependence, illicit drug abuse, illicit drug dependence).

The models generally follow the specification below:

$$\text{Prob(Alcohol abuse)} = F(\beta_0 + \beta_1(\text{Disabled}) + \beta_2\mathbf{X} + \beta_3\mathbf{Z})$$

(3.1)

Where, F is the logistic cumulative distribution function, β_1 is the coefficient of the focal independent variable Disabled and therefore the primary coefficient of interest;

Vector \mathbf{X} contains Age, Gender, Race, Income, Marital status, MSA, with vector β_2 containing the corresponding coefficients;

Vector \mathbf{Z} contains Tried alcohol at age less than or equal to 13, Tried illicit drugs at age less than or equal to age 13, with β_3 containing the corresponding coefficients.

While neither of the two methods of measuring DI, either descriptive or multivariate, provide an exact measure of the DI population, they are useful for policy purposes in providing reasonable estimates of the extent of substance use disorders among this population.

RESULTS

Part I - Descriptive analysis. Table 3.1 contains descriptive information about the key study variables in the combined 2002-2003 dataset. The majority of the sample respondents were in the 18 to 25 year old age group (49.2 percent). More than half of the sample was female (53.3 percent) and most of the sample was white (69.0 percent).

Over ten percent (10.2 percent) of adult respondents said that they had a physical, emotional, or mental problem that either kept them from work or limited their amount of work in the past twelve months. Physical conditions were most frequently reported (6.1 percent). Mental or emotional conditions were reported less often (2.5 percent) as reasons for restricting work activity. Almost two percent (1.5 percent) of adults reported the existence of both types of conditions.

Table 3.1 Descriptive information on key study variables

<i>Variable</i>		<i>Percent</i>
Age	18-25	49.2
	26-34	15.1
	35-49	22.3
	50 or older	13.3
Gender	Male	46.7
	Female	53.3
Race	Non-Hispanic White	69.0
	Other	31.0
Disabled	Disabled	10.2
	Not disabled	89.8
	Physical disability only	6.1
	Mental/emotional disability only	2.5
	Both conditions reported	1.5
Serious mental illness		11.4
Respondent received SSI		2.6
Respondent received DI		1.2

Source: 2002-2003 NSDUH (Adult n=73,396)

Rates of substance abuse and dependence among adults have been on the rise in the US. Table 3.2 provides rates of past year abuse and dependence for alcohol and illicit drugs. Illicit drugs include marijuana/hashish, cocaine (including crack), inhalants, hallucinogens, heroin, and prescription-type drugs used non-medically. In 2004, approximately eight percent of the adult population (7.9 percent) abused or was dependent on alcohol in the past year, and 2.8 percent of the adult population abused or

was dependent on illicit drugs in the past year¹¹. For comparison purposes, rates from the 2000 through 2003 surveys are included as well (SAMHSA, 2004d).

Table 3.2 Percent of adults reporting past year abuse and dependence

	2000	2001	2002	2003	2004
Alcohol abuse	3.1	3.6	4.3	4.4	4.3
Alcohol dependence	2.3	2.5	3.6	3.3	3.6
Illicit drug abuse	.5	.7	.9	.9	.9
Illicit drug dependence	1.1	1.5	1.8	1.7	1.9

Sources: 2000 NHSDA (n=71,764), 2001 NHSDA (n=55,561), 2002 NSDUH (n=54,079), 2003 NSDUH (n=55,230), 2004 NSDUH (n=67,760)

Distribution of dependent variables by demographic characteristics. Data from the combined dataset provide information on overall rates of substance use, abuse and dependence among the general adult population. As shown in Table 3.3, the NSDUH provides prevalence estimates for abuse and dependence among the general population, demonstrating how these rates vary along a few of the dimensions mentioned in the literature review. Males had approximately twice the rate of abuse or dependence (20.2 percent) than females (10.6 percent). White people had the highest rates (15.5 percent) while non-whites had the lowest rates of abuse or dependence (12.7 percent). Persons in the youngest age group (ages 18 to 25) had higher rates of abuse or dependence than persons in older age groups. Persons in MSAs of less than 1 million people had slightly higher rates of abuse or dependence than others.

¹¹ While a public use file of 2004 data was not available, summary statistics were publicly reported.

Table 3.3 Percent of adults with past year alcohol or illicit drug abuse or dependence

Dimension		<i>Percent</i>
Gender	Males	20.2
	Females	10.6
Race	White	15.5
	Black	12.7
	Hispanic	14.8
	Other	15.2
Age	18-25	21.5
	26-34	13.3
	35-49	9.2
	50 and older	3.4
Population density	MSA 1 million or more	14.4
	MSA less than 1 million	16.1
	Not in MSA	14.6

Source: 2002-2003 NSDUH (Adult n= 73,396)

Descriptive association between disability and abuse or dependence. Table 3.4 shows differences in rates of substance abuse and dependence during the past year among persons with and without disabilities, according to data from the combined 2002-2003 NSDUH dataset. In most cases, rates of abuse and dependence were higher for persons with disabling conditions. Over nine percent (9.4 percent) of persons with disabilities, for example, were alcohol dependent, compared to only 4.8 percent of persons who were not disabled. While only 2.5 percent of adults without serious mental illness were dependent on illicit drugs, over ten percent (10.1 percent) of seriously mentally ill persons were dependent on illicit drugs. Alcohol abuse rates were slightly higher among

persons who were not disabled, however. Rates of abuse and dependence were substantially lower for persons with only physical disabilities compared to rates for persons with either mental/emotional disabilities or both types of disabilities. A Chi square test of independence shows that a statistically significant relationship exists between disability and substance abuse or dependence (p-value= $<.01$).

Table 3.4 Percent of adults with disabilities with past year substance abuse and dependence

	<i>Alcohol abuse</i>	<i>Alcohol dependence</i>	<i>Illicit drug abuse</i>	<i>Illicit drug dependence</i>
No disability	7.5	4.8	1.6	3.0
Disability	6.2	9.4	1.8	6.9
• Physical disability only	5.0	5.3	1.2	3.2
• Mental/emotional	8.9	16.9	2.8	13.4
• Both	6.4	13.6	2.8	11.2
No serious mental illness	9.8	4.2	1.4	2.5
Serious mental illness	7.0	13.6	3.2	10.1

Source: 2002-2003 NSDUH (Adult n=73,396)

Table 3.5 shows the percentage of DI, SSI, and concurrent DI/SSI recipients with abuse or dependence in the past year, based upon the proxy measure of DI described earlier. Percentages are shown for each type of abuse or dependence, as well as for persons with any type of abuse or dependence¹². Alcohol dependence was the most

¹² Since it is possible for people to have more than one form of abuse or dependence in the past year, a simple summation of the other categories would not suffice as an estimate of the percentage of a sub-population who had any abuse or dependence in the past year. For example, summing the percentages of abuse and dependence in the first row, for DI beneficiaries, gives a higher percentage (12.5) than the “any abuse or dependence” category (10.5), as a number of beneficiaries had more than one type of abuse or dependence.

common form of abuse or dependence over the past year for all beneficiaries, ranging from 5.4 to 6.6 percent. Illicit drug abuse was the least common form of abuse or dependence, ranging from 1.1 to 2.0 percent. Clearly, more than one in ten disability beneficiaries had some form of substance abuse or dependence over the past year.

Table 3.5 Adult DI, SSI, DI/SSI participants with past year abuse or dependence

	N	<i>Alcohol Abuse</i>	<i>Alcohol dependence</i>	<i>Illicit drug abuse</i>	<i>Illicit drug dependence</i>	<i>Any abuse or dependence</i>
DI	553	2.9	5.4	1.1	3.1	10.5
SSI	1,604	4.7	5.5	1.7	5.0	14.1
DI/SSI	305	4.6	6.6	2.0	4.3	14.8

Source: 2002-2003 NSDUH (Adult n=73,396)

A Chi square analysis shows a statistically significant association for both DI-only and SSI-only cases and alcohol abuse, as well as for SSI and illicit drug dependence and DI and any abuse or dependence. None of the other associations were statistically significant, suggesting that a clear relationship might not exist among disability benefit receipt and certain types of abuse or dependence, at least descriptively speaking.

Relatively low rates of abuse and dependence are indicated for DI beneficiaries using this descriptive method. Multivariate methods can also be used to calculate abuse and dependence estimates for DI.

Part II – multivariate analysis. Four different multivariate models were developed. Models incorporated the explanatory variables outlined in the literature as well as the *disability* variable and its variations, *physical* and *SMI*. The general *disability*

variable was included as the focal independent variable in half of the analyses. In the remaining models, specific variables signifying persons who reported solely physical conditions (*physical*) and variables indicating persons who met the criteria for a serious mental illness (*SMI*) are included as the focal independent variables.

For the models of abuse, all individuals who would have been classified as dependent on the particular substance were removed from the dataset. Similarly, for models of dependence, persons who would have been classified as abusing substances were removed from the dataset. The results thus clearly delineate between persons who either abused or were dependent on substances and persons who did not exhibit any clinical substance use behavior.

Since the model coefficient represents changes in the log odds of abuse and dependence, in order to ease interpretation of the results, the coefficients are converted and interpreted as: 1) odds ratios to assess relative effects, and 2) marginal effects, holding all other variables at their respective means. Odds ratios indicate changes in the odds of an event occurring. Odds ratios greater than one indicate an increased chance of an event occurring and odds ratios less than one indicate a decreased chance of an event occurring. The marginal effect, as calculated here, provides an estimate of how the probability of abuse or dependence will change given the presence of a disabling condition¹³. Marginal effects of *disability*, *physical* and *SMI* for all models are calculated holding all other variables constant at their modes, since all of our variables are categorical. Based on these results, the effect of a disabling condition on the probability

¹³ These marginal effects were calculated using Excel.

of abuse or dependence for a typical member of our sample can then be discussed. These results can then be applied to estimating rates of abuse and dependence among the DI population.

For all of the results shown below, Model 1 is the model that includes the aggregate *disability* variable, and Model 2 is the model that includes *physical* and *SMI*. The models that include *disability* will provide an estimate of the overall strength, direction, and nature of the relationship between disability and abuse or dependence. The models that include *physical* and *SMI* will provide detail on whether the presence of those two characteristics has an effect on abuse or dependence. Goodness of fit statistics are reported, including the Hosmer-Lemeshow test, Cox and Snell R^2 , and Nagelkerke R^2 . The Hosmer-Lemeshow test is a goodness of fit test of the null hypothesis that the model adequately fits the data. If the significance of the test is small (i.e. less than .05), then the model does not adequately fit the data. Cox and Snell R^2 and Nagelkerke R^2 are two approximations, or pseudo- R^2 , of the R^2 statistic calculated in linear regression, with their values indicating the proportion of variation in the dependent variable that is explained by the model. Coefficients, standard errors, and significance levels are shown for all variables.

Alcohol abuse. Table 3.6 shows the results from the models with alcohol abuse as the dependent variable. Goodness of fit statistics do not suggest a strong model. In both models, holding all other variables constant, the data confirm what the literature suggests in terms of factors that increase the odds of abuse. Being young, male and having tried alcohol or illicit drugs at age 13 or younger all increase the odds of alcohol abuse.

Disability is not a significant variable in the first model. In the second model, however, *physical* and *SMI* are both significant variables. The odds ratio for *physical* is .799, suggesting that the odds of persons with a physical condition abusing alcohol are approximately 20 percent less than those who do not have physical conditions or serious mental illness. The odds ratio of *SMI* is 1.524, indicating that persons with a serious mental illness have odds of abusing alcohol that are 52 percent higher than persons with neither a physical condition nor a serious mental illness.. Whereas the marginal effect of *physical* is negative, suggesting that the presence of a physical disability has a small negative effect on the probability of alcohol abuse, the marginal effect of *SMI* is positive, indicating that the presence of *SMI* increases the probability of alcohol abuse by .6 percent.

**Table 3.6 Logistic regression of alcohol abuse on
disability and other control variables**

<i>Variables</i>	Model 1		Model 2			
	Coeff (SE)	Exp(β)	ME (%)	Coeff (SE)	Exp(β)	ME (%)
Age	.732** (.036)	2.080		.720** (.036)	2.054	
Gender	.812** (.031)	2.253		.847** (.031)	2.333	
Race	.423** (.034)	1.527		.418** (.034)	1.518	
MSA	.089* (.030)	1.093		.090* (.030)	1.094	
Alcohol try LE 13	.673** (.037)	1.961		.657** (.037)	1.929	
Illicit try LE 13	.375** (.049)	1.456		.351** (.049)	1.421	
Income	-.002 (.015)	.998		.001 (.015)	1.001	
Marriage	-.882** (.041)	.439		-.804** (.041)	.447	
Disability	-.026 (.052)	.974	-.028	--	--	
Physical	--	--		-.224* (.072)	.799	-.219
SMI	--	--		.421** (.042)	1.524	.567
Source	.038 (.029)	1.039		.041 (.029)	1.042	
Intercept	-3.618** (.056)	.027		-3.695** (.058)	.025	
Hosmer-Lemeshow						
Chi square	50.750			63.843		
p-value	.000			.000		
Cox and Snell R ²	.048			.050		
Nagelkerke R ²	.115			.119		

* p<.05

**p<.001

n=69,523

Alcohol dependence. Table 3.7 includes results from the models of alcohol dependence. The Hosmer-Lemeshow test for Model 1 does not lead us to reject the null hypothesis that the model fits the data. This test for Model 2, however, does not suggest a strong model. Similar to the models of abuse, the analysis confirms what the literature suggests about the effect of age, gender, and early substance use on alcohol dependence. The odds of alcohol dependence increase by a factor of 2.066 for persons who are disabled, *ceretis paribus*. The presence of a disability increases the probability of alcohol dependence by over one percent. The odds ratio for *SMI* is high at 3.354, suggesting that persons with a serious mental illness have much higher odds of alcohol dependence than persons who do not have either a physical disability or serious mental illness. The presence of *SMI* increases the probability of alcohol dependence by 2.18 percent.

Table 3.7 Logistic regression of alcohol dependence on disability and other control variables

<i>Variables</i>	Model 1		Model 2			
	Coeff (SE)	Exp(β)	ME (%)	Coeff (SE)	Exp(β)	ME (%)
Age	.434** (.039)	1.543		.345** (.039)	1.412	
Gender	.608** (.035)	1.837		.720** (.036)	2.055	
Race	.108* (.037)	1.114		.081* (.035)	1.083	
MSA	.087* (.035)	1.090		.081* (.035)	1.084	
Alcohol try LE 13	.963** (.041)	2.620		.925** (.041)	2.521	
Illicit try LE 13	.549** (.052)	1.732		.487** (.052)	1.627	
Income	-.076** (.018)	.927		-.078** (.018)	.925	
Marriage	-.964** (.047)	.381		-.914** (.048)	.401	
Disability	.725** (.046)	2.066	1.066	--	--	
Physical	--	--		.026 (.072)	1.027	.025
SMI	--	--		1.210** (.040)	3.354	2.181
Source	.095* (.034)	1.100		.107** (.034)	1.112	
Intercept	-3.457** (.063)	.032		-3.570** (.064)	.028	
Hosmer-Lemeshow						
Chi square	13.965			31.878		
p-value	.083			.000		
Cox and Snell R ²	.041			.050		
Nagelkerke R ²	.117			.140		

* p<.05

**p<.001

n=68,025

Illicit drug abuse. Results for the models of illicit drug abuse are included in Table 3.8. Goodness of fit statistics suggest that the models fit the data. Recall that illicit drugs are defined to include marijuana, cocaine (crack), inhalants, hallucinogens, heroin, and prescription-type drugs used non-medically. Again, the results show that age, gender and use of substances at an early age contribute to increased odds of abuse and that persons who are married have lower odds of substance abuse. In addition, the odds ratio for *disability* (1.348) suggests that the odds of abusing illicit drugs are 35 percent higher for persons reporting a disabling condition compared to persons who are not disabled. The marginal effect indicates that the probability of illicit drug abuse increases by approximately .4 percent with the presence of disability. The odds ratio for *SMI* (2.141) suggests that the odds for persons with a serious mental illness are 114 percent higher than the odds for persons who do not have a physical disability or a serious mental illness.

Table 3.8 Logistic regressions of any illicit drug abuse on disability and other control variables

<i>Variables</i>	Model 1			Model 2		
	Coeff (SE)	Exp(β)	ME	Coeff (SE)	Exp(β)	ME
Age	1.013** (.079)	2.755		.974** (.079)	2.648	
Gender	.759** (.063)	2.137		.826** (.064)	2.283	
Race	-.025 (.064)	.975		-.039 (.064)	.962	
MSA	.132* (.060)	1.141		.131** (.060)	1.140	
Alcohol try LE 13	.658** (.072)	1.931		.629** (.072)	1.877	
Illicit try LE 13	.999** (.081)	2.714		.971** (.081)	2.640	
Income	-.013 (.030)	.987		-.010 (.030)	.990	
Marriage	-.887** (.092)	.412		-.855** (.092)	.425	
Disability	.299* (.094)	1.348	.397	--	--	
Physical	--	--		-.113 (.142)	.893	-.021
SMI	--	--		.761** (.074)	2.141	.228
Source	-.005 (.059)	.995		.003 (.059)	1.003	
Intercept	-5.240** (.120)	.005		-5.334** (.118)	.005	
Hosmer-Lemeshow						
Chi square	11.667			13.579		
p-value	.167			.093		
Cox and Snell R ²						
	.017			.018		
Nagelkerke R ²						
	.107			.115		

* p<.05

**p<.001

n=70,898

Illicit drug dependence. Results from the illicit drug dependence model are shown in Table 3.9. Goodness of fit statistics do not suggest a strong model. Once again, the models confirm that age, gender and age of first use play an important role in drug dependence. For the first model, the odds ratio of *disability* (2.571) suggests that the odds of being dependent on illicit drugs are 157 percent higher for persons who report a disability than for persons who do not report a disability, *ceretis paribus*. Similarly, the marginal effect suggests that the probability of illicit drug dependence increases by 1.046 percent for persons who are disabled.

The variable *physical* was not significant in Model 2. The high odds ratio for *SMI* (3.529) indicates that the odds of illicit drug dependence for persons with a serious mental illness are 253 percent higher than for persons without either a physical disability or a serious mental illness. The marginal effect suggests that the probability of illicit drug dependence increases by almost one percent for persons with a serious mental illness.

Table 3.9 Logistic regression of any illicit drug dependence on disability and other control variables

<i>Variables</i>	Model 1			Model 2		
	Coeff (SE)	Exp(β)	ME	Coeff (SE)	Exp(β)	ME
Age	.866** (.053)	2.378		.751** (.053)	2.118	
Gender	.394** (.043)	1.483		.510** (.044)	1.666	
Race	.020 (.046)	1.020		-.008 (.046)	.992	
MSA	.055 (.043)	1.056		.048 (.044)	1.049	
Alcohol try LE 13	.734** (.051)	2.084		.696** (.051)	2.004	
Illicit try LE 13	1.287** (.055)	3.621		1.244** (.056)	3.468	
Income	-.050* (.022)	.951		-.054* (.022)	.947	
Marriage	-1.184** (.068)	.306		-1.125** (.069)	.325	
Disability	.944** (.055)	2.571	1.046	--	--	
Physical	--	--		.041 (.092)	1.042	.015
SMI	--	--		1.261** (.047)	3.529	.913
Source	.094* (.042)	1.099		.105* (.043)	1.111	
Intercept	-4.292** (.082)	.014		-4.375** (.083)	.013	
Hosmer-Lemeshow						
Chi square	17.155			22.217		
p-value	.029			.005		
Cox and Snell R ²	.041			.046		
Nagelkerke R ²	.158			.177		

* p<.05

**p<.001

n=72,204

DISCUSSION

The purpose of this chapter was to examine the relationship between substance abuse and disability and the relationship between substance abuse and disability benefit receipt. Several specific research hypotheses were identified at the beginning of this chapter. First, the hypothesis was tested that substance abuse is more prevalent among persons with disabilities than among other persons. Descriptive analysis using Chi square methods indicated that a relationship does exist between substance abuse or dependence and disability, lending support to the first hypothesis. Multivariate results presented here also demonstrate that a link does exist between the presence of a disability and a diagnosis of substance abuse or dependence, but cannot state with certainty that the causal relationship is purely one-directional. Although some degree of reciprocity between disability and substance abuse is a distinct possibility, the purpose here has not been to establish a distinctly causal relationship; rather, it has been to develop reasonable models that can be used to estimate rates of abuse and dependence within specific disability programs. Table 3.10 summarizes the statistically significant associations in the form of odds ratios. Recall that abuse diagnoses are less severe than dependence diagnoses and that each diagnosis is distinct.

Table 3.10 Summary odds ratios

	Disability	Physical	Mental
Alcohol abuse	Not significant	.799	1.524
Alcohol dependence	2.066	Not significant	3.354
Illicit drug abuse	1.348	Not significant	2.141
Illicit drug dependence	2.571	Not significant	3.529

Taken as a whole, the results suggest that the presence of a disability increases the odds of alcohol dependence, illicit drug abuse and illicit drug dependence. While the presence of a disability was not significantly related to the odds of alcohol abuse, it significantly increases the odds of alcohol dependence by a factor of 2.066, the odds of illicit drug abuse by a factor of 1.348, and the odds of illicit drug dependence by a factor of 2.571 for persons who were disabled, *ceretis paribus*.

The presence of a physical disability has a protective effect in reducing the risk of alcohol abuse. The odds ratio of .799 suggests that the odds of persons with a physical condition abusing alcohol are approximately 20 percent less than those who do not have a physical condition. The presence of a physical disability was not a significant factor in the odds of alcohol dependence, illicit drug abuse or illicit drug dependence, however.

The presence of a *SMI* greatly increased the odds of abusing or being dependent on alcohol and illicit drugs. *SMI* increases the odds of alcohol abuse by 52 percent, increases the odds of alcohol dependence by 235 percent, increases the odds of illicit

drug abuse by 114 percent, and increases the odds of illicit drug dependence by 253 percent.

The second hypothesis, that substance abuse is more prevalent among disability beneficiaries than among the general population, was tested descriptively. The results were less clear here. Whereas significant relationships were found between DI-only and SSI-only cases and alcohol abuse, as well as for SSI and illicit drug dependence and DI and any abuse or dependence, no other relationships were found to be significant.

Lastly, estimates of the extent of substance abuse among persons with disabilities and disability beneficiaries were developed. Descriptive results show that 6.2 percent of adults with disabilities abused alcohol, 9.4 percent were dependent on alcohol, 1.8 percent abused illicit drugs, and 6.9 were dependent on illicit drugs. Among disability beneficiaries, 10.5 percent of DI-only beneficiaries, 14.1 percent of SSI recipients, and 14.8 of concurrent DI/SSI beneficiaries had any abuse or dependence.

Based on multivariate results, the effect of a disabling condition on the probability of abuse or dependence can be discussed for a typical member of our sample. The average case within the dataset is a white, married female who is 26 years old or older, has a family income between \$20,000 and \$49,999 per year, does not live in an MSA with less than one million people, and does not have a history of trying alcohol or other drugs at age 13 or younger. For this woman, the probability of alcohol dependence is approximately one percent. If this woman were disabled, her probability of alcohol dependence would double to more than two percent.

The effect of the presence of a disabling condition is similar for persons already at higher risk of substance abuse or dependence. A single, white, young male who lives in a MSA with one million people or less, has an annual income of less than \$20,000 per year, and who tried alcohol and other drugs at a young age has a probability of alcohol dependence of approximately 30 percent. A similar person who also has a disability has a probability of alcohol dependence of 47 percent. For a similar at-risk person, the probability of illicit drug abuse increases from 15 percent to 19 percent, with the addition of a disabling condition. These examples demonstrate how the presence of a disabling condition can greatly increase the probability of abuse and dependence.

A similar technique can be applied to the question of rates of use among DI beneficiaries, since the NSDUH does not include a specific variable that can be used to measure DI receipt. The DI program includes nearly six million disabled workers on its benefit rolls. The typical disabled worker beneficiary in the DI program is an older, married, white male who has a family income between \$20,000 and \$49,999 per year (SSA, 2003b). Although data on MSA and age of first use for alcohol and other drugs are not available for DI beneficiaries, these variables can be set at their modes for this exercise. Based upon the multivariate models, the probability of alcohol abuse is 2.37 percent and the probability of alcohol dependence is 3.77 percent for an average DI beneficiary. The probability of illicit drug abuse is .61 percent and the probability of illicit drug dependence is 1.42 percent for an average DI beneficiary.

Table 3.11 compares results from the descriptive estimates of abuse and dependence (first shown in Table 3.5) to estimates derived from the logistic models. The

estimates from the logistic models were calculated using the means and modes of the variables. One would assume that the multivariate model estimates are more accurate than the descriptive estimates, as they account for other variables that may impact the development of substance use disorders.

Table 3.11 Comparison of estimates for DI beneficiary abuse or dependence

	Percent of DI beneficiaries	
	Descriptive estimate	Multivariate estimate
Alcohol abuse	2.9	2.4
Alcohol dependence	5.4	3.8
Illicit drug abuse	1.1	.6
Illicit drug dependence	3.1	1.4

CONCLUSION

The passage of the 1996 legislation reflected the culmination of an extensive policy debate about the relative merits and perils of providing income support to persons who were abusing substances, yet a substantial percentage of current beneficiaries are continuing to struggle with issues of substance abuse. While benefits are not currently being awarded, per se, for substance abuse, substance abuse and dependence are continuing to impact a certain percentage of program participants, whether or not this is a politically popular idea. The impact of substance use within SSA disability programs is not insubstantial. Administrators and program staff within the disability policy community must gain an increased understanding of the risk of substance use among persons with disabilities. Given the extent of public efforts to create and implement meaningful educational and employment programs for persons with disabilities, public

programs must be sure to address one possible barrier to programmatic success. Benefit programs should routinely screen for abuse and dependence as the presence of substance use behavior can severely limit the attainment of educational, vocational, and health outcomes. While addiction may compromise the achievement of programmatic outcomes, the presence of substance abuse or dependence should by no means be used as cause for removal from a particular program. Rather, proper treatment should be made readily available. The following chapter will explore in more detail the connection among abuse or dependence, treatment and employment outcomes to determine whether beneficiaries with substance use disorders are likely to participate in treatment and whether the provision of treatment can mitigate the effect of substance use disorders on the achievement of employment goals.

CHAPTER 4 **BENEFIT RECEIPT, SUBSTANCE ABUSE TREATMENT AND EMPLOYMENT**

INTRODUCTION

As discussed in Chapters 1 and 2, the US government has, in recent years, taken measures to strongly encourage employment among public disability beneficiaries. The rates of employment among DI and SSI beneficiaries continue to remain low, however. A number of barriers to employment are commonly acknowledged within the disability policy community as significant factors contributing to the low rates of employment among DI and SSI beneficiaries. Economic disincentives tied to benefit receipt (Fraker and Moffitt, 1988; Gerry, 2005; Knox et al., 2000), reduced employer demand for persons with disabilities (Acemoglu and Angrist, 2001; DeLeire, 2003; Gerry 2005) and concern about access to health insurance (Ireys et al., 2003) have all been identified as significant barriers. Barriers related to the type of disability have been found to be important as well (Bond et al., 2001; Decker and Thornton, 1995; Mueser et al., 2003; Rupp and Bell, 2003).

An additional possible barrier to employment is substance abuse or dependence. Prior to 1996, SSA formally recognized substance abuse as a disabling condition and administered a loosely monitored program that was designed to encourage treatment of this potential barrier to employment. With the passage of the Contract with America Advancement Act of 1996, however, SSA was no longer allowed to grant disability benefits to persons whose primary diagnosis was one of substance abuse or dependence

(Watkins and Podus, 2000). As substance abuse is no longer an acceptable primary diagnosis for beneficiaries, SSA no longer dedicates any resources towards identifying or treating beneficiaries with substance use disorders. In the current environment, however, SSA is attempting to make a concerted effort to increase employment among its disability program beneficiaries. While Chapter 3 explored the connection between substance abuse, disability and disability benefit receipt, this chapter will focus on a policy question related to one of SSA's goals for its disability programs – employment – and whether this goal may be facilitated by the provision of substance abuse treatment to those in need of such treatment. If those receiving disability benefits are having difficulty in accessing needed substance abuse treatment, success in the employment arena may be hindered.

To assess the relative impact of disability benefit receipt on participation in substance abuse treatment and participation in the labor force, this chapter will test the following hypotheses:

1. Substance abusers who receive disability benefits are more likely to participate in substance abuse treatment; and,
2. Disability beneficiaries with substance use disorders who participate in substance abuse treatment are more likely to be employed.

The ideal model to be tested would be the following:

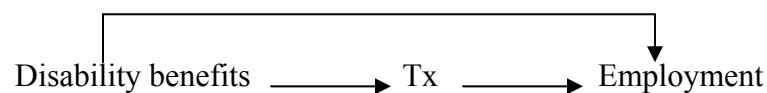


Figure 4.1 Ideal conceptual model

Testing the above model would allow for the estimation of direct and indirect effects of disability benefit receipt on employment using a structural modeling approach, but would require the use of longitudinal data. With the limitation of cross sectional data, however, the model tested in this chapter becomes:

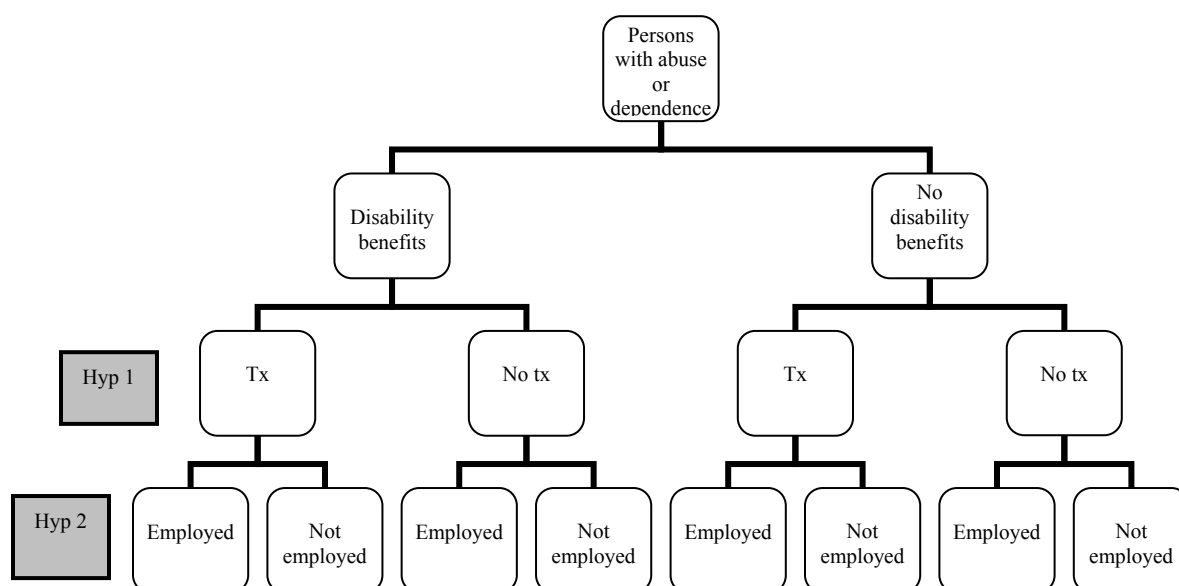


Figure 4.2 Empirical model

Persons with abuse or dependence can be split into two groups – those who receive disability benefits and those who do not. Both of these groups can be further separated into those who participated in treatment during the past year and those who did not. The first empirical specification of this model will be a treatment analysis that examines the link between disability benefit receipt and treatment participation, testing Hypothesis 1. The second step will entail an employment analysis that tests Hypothesis 2, examining

whether treatment receipt impacts employment status for persons with substance use disorders who receive disability benefits (i.e., the left most branch of the above tree diagram). The following sections describe the methodology that will be used to understand these interrelationships, provide analytical results, and discuss policy implications.

TREATMENT ANALYSIS: DATA AND METHODS

Data. A subset of the combined 2002 and 2003 National Survey of Drug Use and Health (NSDUH) data set, discussed in Chapter 3, will be used for analyses in this chapter. While the entire dataset included 73,396 adults aged 18 and over, the subset of persons used for the treatment analysis in this chapter is confined to adults with any type of alcohol or illicit drug abuse or dependence (n=11,076). This subset includes adults who abused alcohol (n=5,371), adults who were dependent on alcohol (n=3,873), adults who abused illicit drugs (n=2,498), and adults who were dependent on illicit drugs (n=1,192). People can abuse or be dependent on both alcohol and illicit drugs.

Measures. Dependent variable. The dependent variable, treatment receipt, was measured two different ways. First, a binary variable was created, with a value of one signifying any receipt of treatment during the past year. Second, a treatment intensity variable was created to test whether a relationship existed between the focal independent variable, disability benefit receipt, and the amount of different types of treatment a person participated in during the past survey year. Variable values ranged from zero (meaning no treatment participation) to nine (meaning some participation in every possible type of

treatment category). Types of treatment include the following: hospital overnight stays, rehabilitation center overnight stays, rehabilitation center outpatient visits, mental health center outpatient visits, emergency room visits, private doctor's office visits, treatment in prison or jail, self-help group participation, or treatment at some other place. The distribution of the sample participating in different amounts of treatment is shown in Table 4.1. For analytical purposes, these frequencies were collapsed to form an ordinal measure with three categories: None (0 treatment), Some (participation in 1-3 types of treatment), and A lot (participation in 4 or more types of treatment).

Focal independent variable. The focal independent variable in the analyses, disability benefit receipt, is modeled as any DI or SSI benefit receipt, rather than separate types of benefit receipt, due to the small number ($n= 329$) of benefit participants among the sample of persons with substance abuse disorders.

Control variables. Control variables used in the models include those variables identified in the relevant literature as affecting probability of treatment participation. These included standard demographic variables (age, gender, race, marital status, population density, and education), an indicator for type of abuse/dependence, information on health insurance, and a variable to differentiate the year of the survey. *Age* is measured as a binary variable since only categorical age data was available, with a value of one assigned to persons aged 18 to 25, and a value of zero assigned to persons aged 26 and older. Dichotomous variables were created for *gender*, *race*, *marital status*, and *MSA* as well, with values of one indicating males, whites, persons who were married, and persons living in MSAs of fewer than one million people. *Education* was a binary

variable, with a value of one indicating receipt of at least a high school education. Since all of the cases included persons with some form of abuse or dependence, a dummy variable was included to distinguish persons who had *illicit drug abuse or dependence* (coded as one) from those who did not have illicit drug abuse or dependence (coded as zero). *Survey year* was included as a dichotomous variable, with a value of one indicating a 2002 survey respondent and a value of zero indicating a 2003 survey respondent.

Health care coverage was included as separate dichotomous variables in the equation, with a value of one signifying the presence of a particular type of health coverage and a value of zero indicating a lack of coverage. Variables were included for private, public and other types of health insurance. The reference group for type of insurance was people with no insurance coverage.

Sample description. Table 4.1 contains descriptive information about the study sample used for the treatment analysis. Most of the sample of adults with substance use disorders was young, male, white and not disabled. Most had completed at least a high school education, were not married, and lived in a metropolitan statistical area of 1 million people or more. A third of the sample (33.3 percent) had illicit drug abuse or dependence. Nearly a quarter (24.4 percent) of the sample had no health insurance.

Only a small percentage (2.9 percent) received disability benefits. Over nine percent (9.1 percent) of the sample participated in substance abuse treatment during the past year, with most of those participants attending three or less different types of treatment.

Table 4.1 Descriptive information on key study variables

<i>Variable</i>		<i>Percent</i>
Age	25 or younger	70.1
	26 or older	29.9
Gender	Male	62.6
	Female	37.4
Race	Non-Hispanic White	71.1
	Other	28.9
Disabled	Disabled	13.5
	Not disabled	86.5
Benefit receipt	SSI	2.0
	DI	.5
	DI and SSI	.4
Education	12 th grade or higher	79.0
	Less than 12 th grade	21.0
Marital status	Married	17.9
	Not married	82.1
Population density	1 million or less	40.5
	More than 1 million	59.5
Illicit drug abuse/dependence		33.3
Health insurance	Public	12.6
	Private	61.4
	Other	2.6
	None	24.4
Survey year	2002	50.3
	2003	49.7
Treatment in past year		9.1
Number of types of tx participated in	0	91.8
	1	2.3
	2	2.3
	3	2.3
	4	1.6
	5	1.0
	6	.5
	7	.3
	8	.2
	9	.0

Source: 2002-2003 NSDUH, adults with abuse or dependence (n=11,076)

Analytic strategy. Multivariate models for treatment receipt were run sequentially, beginning with a naïve model that only included the focal independent variable, progressing through the addition of other control variables in further models, and concluding with a full model that included the variables from preceding variables. The specification of the full model was as follows:

$$\text{Prob}(\text{Treatment}) = F(\beta_0 + \beta_1 R + \beta_2 \mathbf{X} + \beta_3 \mathbf{V}) \quad (4.1)$$

Where, F is the logistic cumulative distribution function, R is the indicator of DI/SSI benefit receipt, the focal independent variable in the analysis and β_1 , the primary coefficient of interest;

Vectors \mathbf{X} and \mathbf{V} contain the control variables, where Vector \mathbf{X} contains Age, Gender, Race, Population density, Education, Marital status, Illicit abuse/dependence, with vector β_2 containing corresponding coefficients; and

Vector \mathbf{V} contains Public health insurance, Private health insurance, Other health insurance and Survey year, with vector β_3 containing corresponding coefficients.

The models provide an estimate of the overall strength, direction, and nature of the relationship between benefit receipt and receipt of treatment, controlling for other relevant variables. Goodness of fit and pseudo- R^2 statistics are reported. Coefficients, standard errors, and significance levels are shown for all variables. Results are compared across models to assess the relative effect of disability on treatment participation rates. Results are interpreted as: 1) odds ratios to assess relative effects, and 2) marginal effects, holding all other variables at their respective means. The focal marginal effect, as calculated here, provides an estimate of how the probability of treatment receipt will

change given receipt of disability benefits. Based on these results, the effect of disability benefit receipt on the probability of receiving substance abuse treatment in the past year can then be discussed.

In order to assess whether treatment intensity, rather than receiving some treatment or not, is influenced by benefit receipt, ordinal logistic regression models were run using the same sequential approach, but using an ordered treatment variable that measures treatment intensity as the dependent variable. The full model follows the specification below:

$$\text{Prob}(\text{Treatment}=1, 2)=F(\beta_0+\beta_1R+\beta_2X+\beta_3V) \quad (4.2)$$

Where, F , R , β_1 , X , β_2 , V , and β_3 are all as specified in Equation 4.1.

TREATMENT ANALYSIS: RESULTS

Descriptive results. Descriptive statistics presented in Table 4.2 show how alcohol or drug treatment receipt during the past year differs by certain variables. As a whole, only 9.1 percent of persons with abuse or dependence participated in treatment of any type during the past year. Persons with illicit drug abuse or dependence had higher rates of treatment participation than persons who did not have illicit drug abuse or dependence. Older persons, persons with less than a high school education, and persons who were not married were more likely to participate in treatment during the past year. Persons who were white were less likely to participate in treatment. Population density had no significant effect.

Persons with disabilities had substantially higher rates of treatment participation than persons who did not have a disability. Nearly 17 percent of persons with a disability received substance abuse treatment in the past year, compared to only eight percent of persons without a disability. The focus of this chapter, however, is not on disability per se, but on benefit receipt. Rates of treatment receipt for persons on disability benefits were 21 percent compared to less than nine percent for those not receiving disability benefits.

Table 4.2 Participation in any type of alcohol or drug treatment, past year

Variable	Sample size	Alcohol or drug treatment past 12 months	
		<i>N</i>	<i>Percent</i>
Abuse or dependence	11,076	1,003	9.1
Any illicit drug abuse/dep	3,690	547	14.8
Only alcohol abuse/dep	9,244	783	8.5
Disabled	1,490	249	16.7
Non-disabled	9,586	754	7.9
Any DI/SSI	329	69	21.0
No DI/SSI	10,747	934	8.7
Age 25 or younger	7,761	640	8.2
Age 26 or older	3,315	363	11.0
White	7,871	684	8.7
Non-white	3,205	319	10.0
Male	6,930	648	9.4
Female	4,146	355	8.6
HS or higher	8,753	692	7.9
Less than HS	2,323	311	13.4
Married	1,981	145	7.3
Not married	9,095	858	9.4
Pop 1 million or less	4,482	413	9.2
Pop more than 1 million	6,594	590	8.9
Public health insurance	1,399	224	16.0
Private health insurance	6,803	457	6.7
Other insurance	292	33	11.3
No insurance	2,461	260	10.6

Source: NSDUH, 2002-2003; n=11,076

Table 4.2 suggests that compared to persons with private, other, or no health insurance, rates of treatment receipt were higher for persons receiving some form of public health insurance. Differences in health insurance participation between beneficiaries and non-beneficiaries are provided in Table 4.3. An obvious dichotomy exists in which the majority of public disability beneficiaries receive public health insurance and the majority of non-beneficiaries have private health insurance coverage.

Table 4.3 Health insurance and benefit receipt

	DI/SSI	No disability benefits
Private health insurance	25.5%	62.5%
Public health insurance	72.3%	10.8%
Other health insurance	2.4%	2.6%

Source: NSDUH, 2002-2003; n=11,076

The data in Table 4.4 describe the different types of treatment received by people during the past year. Since people might have participated in more than one form of treatment during the past year, types of treatment are recorded as episodes. The most common form of treatment received for all types of people, including those with a disability or those receiving disability benefits, was participation in a self-help group.

Table 4.4 Types of treatment participation during the past year

Type of treatment	Disabled	DI-only	SSI-only	DI/SSI concurrent
Total number of people	1,490	58	226	45
	<i>Percent participating in type of treatment</i>			
Hospital/overnight	6.9	5.2	5.8	13.3
Rehab center/overnight	7.6	15.5	7.1	15.6
Rehab center/outpatient	8.2	13.8	11.1	15.6
MH center/outpatient	6.8	8.6	10.2	11.1
Emergency room	3.3	3.4	4.0	6.7
Private doctor office	3.6	3.4	2.7	6.7
Prison/jail	1.2	3.4	1.3	0.0
Self help group	10.4	15.5	11.5	13.3
Some other place	4.7	8.6	2.7	8.9

Source: NSDUH, 2002-2003; n=11,076

Regression results. Logistic regressions were run to assess the impact of the focal independent variables on the probability of receiving treatment in the past year with other relevant variables controlled. Table 4.5 shows the results from the models that included a dichotomous treatment variable as the dependent variable. In each model, variables that are significant at the .05 and .001 level are indicated¹⁴.

¹⁴ Additional models that included a categorical variable for income were run. Income was not significant in any of the additional models.

Table 4.5 Logistic regressions of treatment in the past year on disability benefit receipt and other control variables

<i>Variables</i>	Model 1		Model 2		Model 3		Model 4		Model 5		ME
	Coeff (SE)	Exp(β)	Coeff (SE)	Exp(β)	Coeff (SE)	Exp(β)	Coeff (SE)	Exp(β)	Coeff (SE)	Exp(β)	
Age	--	--	--	--	-.564** (.078)	.569	-.567** (.078)	.567	-.529** (.078)	.589	-.042
Gender	--	--	--	--	.094 (.071)	1.098	.094 (.071)	1.099	.138 (.072)	1.147	.010
Race	--	--	--	--	.018 (.074)	1.018	.015 (.074)	1.015	.110 (.075)	1.116	.008
Pop dens	--	--	--	--	--	--	.068 (.069)	1.070	.068 (.069)	1.070	.005
Education	--	--	--	--	-.422** (.076)	.656	-.423** (.076)	.655	-.275** (.079)	.760	-.021
Mar status	--	--	--	--	-.418** (.103)	.658	-.419** (.103)	.658	-.353** (.103)	.703	-.023
Ill ab/dep	--	--	.956** (.067)	2.602	.951** (.069)	2.589	.951** (.069)	2.588	.908* (.069)	2.479	.075
DI/SSI	1.025** (.140)	2.788	.929** (.142)	2.533	.714** (.146)	2.043	.718** (.146)	2.051	.401* (.157)	1.493	.034
Pub h ins	--	--	--	--	--	--	--	--	.365** (.098)	1.440	.029
Priv h ins	--	--	--	--	--	--	--	--	-.400** (.077)	.670	-.030
Oth h ins	--	--	--	--	--	--	--	--	.134 (.197)	1.144	.010
No ins (ref group)	--	--	--	--	--	--	--	--	--	--	--
Surv yr (2002)	--	--	--	--	--	--	--	--	-.210* (.068)	.810	-.015
Intercept	-2.352** (.034)	.095	-2.755** (.049)	.064	- 2.051** (.116)	.129	-2.074** (.118)	.126	-2.028** (.130)	.132	
Hosmer-Lemeshow χ^2	.000		.047		3.516		10.585		5.698		
p-value	.		.828		.898		.226		.681		
Cox and Snell R ²	.004		.022		.029		.029		.035		
Nagelkerke R ²	.009		.048		.064		.065		.078		

* p<.05 **p<.001 n=11,076

The first model is a naïve model that only includes the focal independent variable, any receipt of DI or SSI. Model 2 builds on Model 1 and includes a variable indicating presence of illicit abuse or dependence. Model 3 adds demographic variables to Model 2, Model 4 adds population density to Model 3, and Model 5 adds health insurance variables and an indicator for survey year to Model 4. The Hosmer-Lemeshow test suggests that Models 3 through 5 fit the data well. The R^2 values for all models were relatively low, ranging from .004 to .078, although their usefulness for assessing model fit for logistic regressions is somewhat limited (Long, 1997).

The variable indicating benefit receipt was significant in each of the models. Odds ratios ranged from 2.788 in the first model to 1.497 in the last model, indicating that the odds of disability beneficiaries with substance use disorders receiving treatment reduce substantially when control variables are added to the model. The final model shows that the odds of disability beneficiaries receiving treatment are nearly 50 percent higher than non-beneficiaries. The marginal effect indicates that receipt of disability benefits increases the probability of treatment participation by three percent.

Running a series of sequential models is helpful in determining whether the statistical significance and the coefficient magnitude of the focal independent variable changes with the addition of control variables. Examining the row that contains DI/SSI receipt, one can see that the significance level of the benefit receipt coefficient does not change until the final model, when the level of significance is reduced from .001 to .05. The coefficients for benefit receipt get consistently smaller in size from Model 1 to Model 5, with the most significant drop seen from Model 4 to Model 5. The coefficient

for benefit receipt drops nearly 61 percent from the naïve model to the final model. The addition of the health insurance and survey year variables in Model 5 appears to have an attenuating effect on benefit receipt, reducing the relative impact of benefit receipt on treatment participation by 44 percent (from Model 4 to Model 5).

Illicit drug abuse and dependence was significant in each of the models in which it was included. In the final model, the odds of persons with illicit drug abuse or dependence receiving treatment over the past year are 148 percent greater than the odds of persons with alcohol abuse or dependence but no illicit drug abuse or dependence. The marginal effect suggests that the presence of illicit drug abuse or dependence increases the probability of treatment receipt by eight percent.

Age, education and marital status were significant variables, with younger people, those who at least completed a high school education, and married persons all less likely to participate in treatment during the past year.

Both the public and private health insurance variables were significant in the final model, but in opposite directions. The odds ratios for types of health insurance indicate that persons who have some form of public health insurance (Medicaid, Medicare, or Champus) have 44 percent higher odds of receiving treatment compared to people with no insurance. The presence of public health insurance increases the probability of treatment participation by three percent. On the other hand, the odds of receiving treatment for persons with private health insurance were 33 percent less compared to those with no insurance. The probability of receiving treatment decreased three percent for persons with private health insurance.

Survey year was also a significant variable in the last model, suggesting that differences exist in the amount of treatment accessed from one year to the next, with those surveyed in 2002 less likely to receive treatment. The probability of participating in treatment decreased two percent for persons who responded to the 2002 survey.

Table 4.6 contains results from the ordinal logistic regressions of treatment, with treatment measured as an ordinal variable, indicating levels of participation in different types of treatment. Treatment intensity was collapsed into the following categories: None, Some (1-3 types of treatment), and A lot (4 or more types of treatment), with the A lot category serving as the reference category in the model estimation. The modeling strategy here follows the sequential modeling strategy used earlier with respect to logistic regression models, with Model 1 being the naïve model and the rest of the models adding other control variables in stages. The likelihood ratio tests indicate good model fit and that the independent variables as a group are significant predictors of treatment receipt. The pseudo- R^2 values range from .004 to .069.

Table 4.6 Ordinal regression of treatment intensity in the past year on disability benefit receipt and other control variables

		Model 1		Model 2		Model 3		Model 4		Model 5					
		Coeff (SE)	Exp(β)	Coeff (SE)	Exp(β)	Coeff (SE)	Exp(β)	Coeff (SE)	Exp(β)	Coeff (SE)	Exp(β)	ME (Tx=1)	ME (Tx=2)	ME (Tx=3)	
Thr	Tx intensity=1 (None)	2.461** (.036)		2.875** (.052)		2.237** (.121)		2.260** (.124)		2.219** (.136)					
	Tx intensity=2 (Some)	3.963** (.069)		4.393** (.079)		3.764** (.135)		3.787** (.137)		3.753** (.148)					
Loc	Age	--	--	--	--	-.581** (.080)	.559	-.584** (.080)	.558	-.543** (.081)	.581	.039	-.030	-.010	
	Gender	--	--	--	--	.060 (.073)	1.062	.061 (.073)	1.063	.105 (.074)	1.111	-.007	.005	.002	
	Race	--	--	--	--	.089 (.078)	1.093	.085 (.078)	1.089	.186* (.079)	1.204	-.012	.009	.003	
	Mar stat	--	--	--	--	-.428* (.107)	.652	-.429* (.107)	.651	-.357* (.107)	.700	.021	-.016	-.005	
	Pop dens	--	--	--	--	--	--	.069 (.071)	1.071	.067 (.072)	1.069	-.004	.003	.001	
	Education	--	--	--	--	-.359** (.080)	.698	-.360** (.080)	.698	-.204* (.083)	.815	.014	-.010	-.003	
	DI/SSI	1.046** (.143)	2.846	.953** (.145)	2.593	.752** (.148)	2.121	.757** (.148)	2.132	.421* (.160)	1.523	-.033	.025	.008	
	Ill ab/dep	--	--	.977** (.070)	2.656	.986** (.072)	2.680	.985** (.072)	2.678	.940** (.072)	2.560	-.071	.054	.018	
	Priv h ins	--	--	--	--	--	--	--	--	-.416** (.079)	.660	.028	-.022	-.007	
	Pub h ins	--	--	--	--	--	--	--	--	.397** (.101)	1.487	-.030	.022	.007	
	Oth h ins	--	--	--	--	--	--	--	--	-.215 (.071)	.807	-.008	.006	.002	
	No ins (ref group)	--	--	--	--	--	--	--	--	--	--	--	--	--	
	Surv yr (2002)	--	--	--	--	--	--	--	--	--	-.215* (.071)	.806	.014	.011	-.003
	LL ratio test: χ^2 (Sig)	42.194 (.000)		235.547 (.000)		305.447 (.000)		365.616 (.000)		2449.654 (.000)					
	Cox and Snell R ²	.004		.021		.027		.027		.033					
Nagelkerke R ²	.008		.044		.056		.057		.069						
McFadden R ²	.006		.032		.042		.042		.052						

* p<.05 **p<.001 n=11,076

The results of the ordinal models are virtually the same as the binary logistic regression results, especially with respect to the benefit receipt variable. Receipt of DI and/or SSI was significant in all models. The odds ratio of the focal independent variable in the final model suggests that when persons receive disability benefits, the odds of being in the “A lot” treatment category compared to all other categories increases by 52 percent. The marginal effects indicate that, compared to persons not receiving benefits, beneficiaries have a three percent lower probability of being in the “None” treatment group, a three percent higher probability of being in the “Some” treatment category, and a one percent higher probability of being in the “A lot” treatment category. These results suggest that even though the binary logistic regressions showed that beneficiaries are more likely to receive treatment, they are likely to receive mostly “Some” treatment but not “A lot”.

Similarly, persons with illicit drug abuse or dependence have increased odds of 156 percent of being in the “A lot” treatment category, compared to other categories. Conversely, the probability of being in the “None” treatment group for persons with illicit drug abuse or dependence is seven percent less than persons who do have alcohol abuse or dependence but not illicit drug abuse or dependence.

The age, marital status, and education parameter estimates were all significant. The odds ratios of these variables suggest that being younger, married, or educated decreases the odds of participating in many different forms of treatment. Race was significant in the final model, suggesting that persons who were white were more likely to participate in a variety of treatment types, compared to other persons.

Similar to the results from the binary logistic regressions, public and private health insurance were significant in opposite directions. Persons with private health insurance were less likely to be a part of the “A lot” category and persons with public health insurance were more likely to be a part of the “A lot” category, compared to persons with no insurance. The marginal effects indicate that the presence of private health insurance increases the probability of being in the “None” category of treatment participation by three percent and decreases the probability of being in the “Some” and “A lot” categories by two and one percent, respectively.

Survey year was significant, suggesting that persons who took the survey in 2002 were less likely to be a part of the “A lot” category, compared to those surveyed in 2003.

EMPLOYMENT ANALYSIS: DATA AND METHODS.

Data. The data for the employment analysis is a sub-set of the data used for the treatment analysis. All cases that received disability benefits were selected (n=329), restricting the sample to just those abusers who received disability benefits.

Measures. Dependent variable. The dependent variable, employment, was a dichotomous variable measured as either full- or part-time employment in the past week or no employment.

Focal independent variable. The focal independent variables in the employment analyses were either the dichotomous treatment receipt variable or two dummy treatment intensity variables created to represent the three category ordinal variable used in the treatment analysis. By using two different versions of the focal variable, the analysis can differentiate whether no participation in treatment, participation in any treatment or participation in multiple types of treatment matters with respect to employment.

Control variables. The control variables used in the employment analysis were a sub-set of the control variables used in the treatment analysis: Illicit drug abuse/dependence, age, gender, race, education, marital status, population density, and survey year.

Sample description. Table 4.7 contains information for the sample on the key study variables in the employment analysis. Among disability beneficiaries with substance use disorders, most were older, male, white, and unmarried persons living in more densely populated areas. Most had at least a high school education. Twenty-one percent participated in some form of substance abuse treatment during the past year. Only 32.2 percent were employed either full- or part-time during the past week.

Table 4.7 Descriptive information for beneficiaries with substance use disorders on key study variables

<i>Variable</i>		<i>Percent</i>
Age	25 or younger	46.5
	26 or older	53.5
Gender	Male	59.0
	Female	41.0
Race	Non-Hispanic White	59.3
	Other	40.7
Marital status	Married	18.2
	Not married	81.8
Pop density	1 million or less	33.4
	More than 1 million	66.6
Education	12 th grade or higher	56.2
	Less than 12 th grade	43.8
Treatment in past year		21.0
No treatment in past year		79.0
Treatment intensity	None	79.0
	Some	12.5
	A lot	8.5
Survey year	2002	50.8
	2003	49.2
Employment	Full or part-time	32.2
	Unemployed	67.8

Source: 2002-2003 NSDUH, adults with abuse or dependence who received disability benefits (n=329)

Analytic strategy. Models were developed to estimate the impact of treatment receipt on the probability of employment for those who received disability benefits. The dependent variables used in the previous analyses for treatment receipt now constitute the focal independent variables in these analyses. The models for employment were also run

sequentially, beginning with naïve models that only included the focal independent variables, progressing through the addition of other control variables, and concluding with full models that followed the specification below:

$$\text{Prob}(\text{Employment})=F(\beta_0+\beta_1T+\beta_2\mathbf{X}) \quad (4.3)$$

Where, F is the logistic cumulative distribution function, T is the indicator of treatment participation, the focal independent variable in the analysis and β_1 , the primary coefficient of interest and, in the second set of regressions, T represents the two treatment intensity dummy variables; and,

Vector \mathbf{X} contains the control variables Illicit drug abuse/dependence, Age, Gender, Race, Education, Population density, and Survey year, with vector β_2 containing the corresponding coefficients.

EMPLOYMENT ANALYSIS: RESULTS

Descriptive results. The intent of the employment analysis is to examine the effect of treatment receipt on employment outcomes for disability beneficiaries who have substance use disorders. Table 4.8 shows how rates of employment generally vary according to different characteristics for this population, including age, gender, race, education, marital status, the presence of illicit drug or alcohol abuse disorders, and participation in treatment. Only 32 percent of disability beneficiaries were employed either full or part-time in the past week. Rates of employment for those with alcohol abuse or dependence were slightly higher than rates for persons with illicit drug abuse or dependence. Rates of employment for persons with at least a high school education were

40 percent, compared to 22 percent for persons with less than a high school education. Of those who participated in treatment, over 30 percent were employed in the past week.

Table 4.8 Employment (full-time or part-time), past week, among disability beneficiaries with abuse or dependence

Variable	Sample size	Employed	
		<i>N</i>	<i>Percent</i>
Disability beneficiaries	329	106	32.2
White	195	66	33.8
Non-white	134	40	29.9
Male	194	66	34.0
Female	135	40	29.6
Married	60	16	26.7
Not married	269	90	33.5
HS or higher	185	74	40.0
Less than HS	144	32	22.2
Age 25 or younger	153	64	41.8
Age 26 or older	176	42	23.9
Pop 1 million or less	110	35	31.8
Pop more than 1 million	219	71	32.4
Illicit drug abuse/dep	149	45	30.2
Alcohol abuse/dep	244	78	32.0
Treatment in past year	69	21	30.4

(Source: NSDUH, 2002-2003; n=329)

Regression results. Table 4.9 shows results from the models that included employment in the past week as a dichotomous dependent variable for those who received disability benefits. Recall that all of these models were run only on those cases

in which abuse or dependence was present. The first models are naïve models that only include the focal independent variable, treatment receipt. The second models built upon the first models, adding treatment receipt and the variable indicating the presence of illicit drug abuse or dependence. The third models add demographic variables, the fourth models add population density, and the final models add survey year. Running a series of sequential models is helpful in determining whether the significance and the coefficient magnitude of the focal independent variable changes with the addition of control variables. The Hosmer-Lemeshow tests suggest that the models fit the data fairly well. The R^2 values for all models were relatively low, ranging from .002 to .123.

Table 4.9 Logistic regressions of binary employment variable

<i>Variables</i>	Model 1		Model 2		Model 3		Model 4		Model 5		ME
	Coeff (SE)	Exp(β)	Coeff (SE)	Exp(β)	Coeff (SE)	Exp(β)	Coeff (SE)	Exp(β)	Coeff (SE)	Exp(β)	
Age	--	--	--	--	.956** (.269)	2.600	.959** (.269)	2.608	.948** (.269)	2.581	.202
Gender	--	--	--	--	.248 (.254)	1.282	.246 (.254)	1.280	.212 (.256)	1.236	.045
Race	--	--	--	--	.161 (.256)	1.337	.164 (.256)	1.178	.162 (.257)	1.175	.034
Education	--	--	--	--	.927** (.259)	2.528	.936** (.260)	2.549	.919** (.261)	2.506	.189
Mar stat	--	--	--	--	.033 (.352)	1.034	.033 (.352)	1.034	.048 (.353)	1.049	.010
Pop dens	--	--	--	--	--	--	-.112 (.263)	.894	-.082 (.265)	.921	-.017
Ill ab/ dep	--	--	-.159 (.243)	.853	-.283 (.257)	.753	-.284 (.257)	.753	-.278 (.258)	.758	-.059
Surv yr (2002)	--	--	--	--	--	--	--	--	.321 (.251)	1.379	.068
Treatment	-.105 (.293)	.540	-.065 (.300)	.937	.097 (.318)	1.102	.101 (.318)	1.106	.130 (.319)	1.138	.028
Intercept	-.722** (.132)	3.296	-.660** (.162)	.517	-1.924** (.371)	.146	-1.894** (.378)	.150	-2.045** (.398)	.129	--
Hosmer- Lemeshow χ^2	.000		1.248		10.676		15.017		7.067		
p-value	.		.536		.221		.059		.529		
Cox and Snell R ²	.007		.002		.083		.083		.088		
Nagelkerke R ²	.010		.002		.115		.116		.123		

* p<.05 **p<.001 n=329

Examining the row that contains treatment receipt in the disability beneficiary models, one can see that the treatment receipt coefficient remains insignificant, but that the coefficients change from slightly negative to slightly positive with the addition of other variables. The variable for treatment receipt was not significant in any of the beneficiary models.¹⁵ While the treatment coefficient in the final model is actually in the

¹⁵Treatment receipt was significant in all five models for non-beneficiaries (not shown, but available from the author) although in a negative direction, suggesting that those who participated in treatment during the past year were less likely to be employed during the past week. The odds ratio for treatment in the final model was .627, indicating that the odds of working for persons who participated in treatment were 37 percent lower than the odds of substance abusing persons who did not participate in treatment, holding all other variables equal.

Type of abuse or dependence was significant for non-beneficiaries, with persons with illicit drug abuse or dependence less likely to be employed than persons who had alcohol abuse or dependence but did not have illicit drug abuse or dependence. Age, gender, race, education and marital status were significant for the non-beneficiary models, with older, white, educated, married males more likely to be employed. Survey year was significant at the .05 level, with persons completing the 2002 survey more likely to be employed than those that completed the 2003 survey.

right direction, it does not achieve statistical significance. Age and education were, however, consistently significant, suggesting that younger and better educated disability beneficiaries were more likely to be employed, either full or part-time, in the past week¹⁶. The probability of employment in the past week increases by 20 percent for younger persons and by 19 percent for persons with at least a high school education.

Table 4.10 shows results from the models that included the treatment intensity variables, with the “None” group as a comparison group. The modeling strategy follows that used in the previous table when treatment was measured dichotomously. The Hosmer-Lemeshow test indicates that all of the beneficiary models fit the data well. The R^2 values for all models are relatively low, however, ranging from .010 to .128.

The results shown in Table 4.10 are similar to the results found in the previous table. The variables for treatment intensity were not significant, but age and education were again significant.¹⁷ Younger beneficiaries had odds of working 147 percent higher than older beneficiaries in the final model. The probability of employment increases by 19 percent for younger persons. Those with at least a high school education had odds of working that were 152 times higher than those who did not complete high school.

¹⁶ An additional logistic regression included an interaction variable to determine whether disability beneficiaries with illicit drug abuse or dependence were more or less likely to participate in treatment. The variable was not significant, however.

¹⁷ For non-beneficiaries, the treatment intensity variables were significant in all models (not shown, but available from the author) but negative, providing support for the results found in the binary treatment participation models and suggesting that persons who participated in either some or a lot of different types of treatment during the past year were less likely to be employed in the past week compared to those who did not participate in treatment. Those who participated in a lot of treatment were much less likely to be employed than those who participated in only some treatment. The odds ratios for a lot of treatment in the final model were .399 and the odds ratios for some treatment were .732. Type of abuse or dependence was significant for non-beneficiaries, with persons with illicit abuse or dependence much less likely to be employed. In addition, among non-beneficiaries, older, white, educated, married males were found significantly more likely to be employed. Survey year was not significant in these models.

Obtaining a high school education increases the probability of employment by 19 percent.

Table 4.10 Logistic regressions of employment with ordinal treatment variable

<i>Variables</i>	Model 1		Model 2		Model 3		Model 4		Model 5		ME
	Coeff (SE)	Exp(β)	Coeff (SE)	Exp(β)	Coeff (SE)	Exp(β)	Coeff (SE)	Exp(β)	Coeff (SE)	Exp(β)	
Age	--	--	--	--	.912** (.269)	2.488	.914** (.270)	2.495	.902** (.270)	2.465	.191
Gender	--	--	--	--	.203 (.257)	1.225	.202 (.257)	1.224	.168 (.259)	1.183	.035
Race	--	--	--	--	.159 (.257)	1.172	.161 (.257)	1.175	.161 (.258)	1.174	.034
Education	--	--	--	--	.936** (.260)	2.551	.942** (.261)	2.565	.925** (.262)	2.522	.190
Mar stat	--	--	--	--	.016 (.353)	1.016	.016 (.352)	1.017	.029 (.353)	1.029	.006
Pop dens	--	--	--	--	--	--	-.082 (.265)	.921	-.051 (.266)	.950	-.011
Tx int some	.087 (.382)	1.091	.116 (.387)	1.123	.271 (.412)	1.311	.270 (.413)	1.310	.297 (.414)	1.346	.066
Tx int a lot	-.833 (.510)	.435	-.796 (.516)	.451	-.535 (.534)	.586	-.521 (.536)	.594	-.499 (.536)	.607	-.096
Ill ab/ dep	--	--	-.119 (.224)	.888	-.244 (.258)	.784	-.245** (.258)	.782	-.238 (.258)	.788	-.050
Surv yr (2002)	--	--	--	--	--	--	--	--	.317 (.252)	1.372	.067
Intercept	-.693** (.130)	.500	-.646** (.161)	.524	-1.863** (.370)	.155	-1.842** (.376)	.159	-1.989** (.396)	.137	--
Hosmer- Lemeshow χ^2 p-value	.000 1.000		1.382 .501		4.262 .833		6.855 .552		8.993 .343		
Cox and Snell R ²	.010		.011		.087		.087		.092		
Nagelkerke R ²	.014		.015		.122		.122		.128		

* p<.05 **p<.001 n=329

DISCUSSION

One of the primary aims of this chapter was to test whether substance abusers who receive disability benefits are more likely to participate in substance abuse treatment. The data analysis conducted here provides support for the idea that persons on disability benefits who have substance use disorders are more likely to receive substance abuse treatment than the general population that has substance use disorders, even though SSA no longer encourages or monitors treatment participation. Results also suggest that beneficiaries are more likely to participate in multiple types of treatment. Examining the marginal effects provided in the regression tables can be useful in extrapolating the results to the entire beneficiary population. Looking at the entire sample of persons with substance use disorders, only 9.1 percent participated in treatment during the past year. The probability of treatment for the entire sample is generally low in a given year. Assuming that persons with substance use disorders are similar in all other measured characteristics, receipt of disability benefits slightly increases the probability of participation in substance abuse treatment during the past year, by three percent.

Further investigation is needed to determine why beneficiaries are more likely to access treatment. Possible reasons include an increased awareness of services available through interaction with the disability benefit or vocational rehabilitation systems, an increased willingness to seek out help from professionals for health issues, or an increased level of need as beneficiaries with substance use disorders are concurrently faced with addressing issues surrounding their primary disabling condition¹⁸.

¹⁸An additional logistic regression included an interaction variable to determine whether the interaction between disability benefit receipt and the presence of illicit drug abuse or dependence had an impact on treatment participation. The variable was not significant, however.

The presence of public health insurance was found to increase the odds of participating in substance abuse treatment while the presence of private health insurance was found to decrease the odds of receiving treatment, even when controlling for other variables. Receipt of public health insurance increased the probability of participating in substance abuse treatment by three percent while receipt of private health insurance decreased the probability of participating in treatment by the same amount. This result could be explained by the fact that public health insurance provides greater access to substance abuse treatment at lower out-of-pocket costs to consumers than private health insurance. As discussed earlier, Medicaid provides excellent levels of access to substance abuse treatment in many states while private health insurance often provides lower levels of access to substance abuse and mental health treatments than to other types of care. Further research into this issue could help to illuminate the exact cause for this dichotomy.

Younger persons, those who completed at least a high school education, and married persons were all significantly less likely to participate in treatment. Research has not found conclusive effects of any of these variables on treatment entry (Vaughn et al., 2002; Wu et al., 2003; Pearson, 2004). Results for age have been mixed and recent research has found that the effects of education and marriage differ between low- and high-income groups. While other researchers have found that being married had a significant positive effect on treatment entry for low-income adults, no such effect was discovered for high-income adults. Similarly divergent results were found with respect to education, with increased levels of education resulting in increased treatment entry for

low-income groups and decreased treatment entry for high-income groups (Pearson, 2004).

Survey year was also a significant variable in the last model, suggesting that differences exist in the amount of treatment accessed from one year to the next, with those surveyed in 2002 less likely to receive treatment. The reason for this significant difference is not clear but suggests that differences existed in the ability to access treatment from one year to the next. Slots for treatment may have been less readily available. Also, the impact of the 2001 recession may have reduced individual ability to pay for treatment as the economy was slowly recovering during 2002 (NBER, 2003).

A second aim of this chapter was to test whether participation in treatment leads to increased levels of employment for disability beneficiaries. One interesting finding was that some of the same people who were found less likely to seek treatment in the treatment analysis (younger persons and those who completed at least a high school education) were found to have generally higher rates of employment than reference groups. Although a number of studies cited earlier in this dissertation suggest that treatment does lead to improved employment outcomes, the data analyzed here do not support this claim. The results of the employment analysis did not find any significant effect of treatment receipt for beneficiaries¹⁹. Beneficiaries with substance use disorders who participated in treatment during the past year had about a three percent higher probability of being employed compared to those who did not participate in treatment, although this effect was not statistically significant.

¹⁹ An additional logistic regression (not shown, but available from the author) included an interaction variable to determine whether, among disability beneficiaries, persons with illicit drug abuse or dependence who participated in treatment were more or less likely to be employed. The variable was not significant, however.

A number of methodological as well as substantive reasons can be offered to explain the failure of this empirical analysis to detect a significant effect of treatment receipt on employment behavior. The methodological reasons relate to data collection, measurement, research design, and model specification issues. The decision to use cross-sectional data, for example, places limitations on the ability to discern longer-term impacts that might result from participation in treatment. The use of longitudinal data would have better allowed for the time-ordered analysis of treatment effects. Measurement error in creating the benefit receipt variable may have impacted results if certain beneficiaries were mistakenly included or excluded from the analysis. The proxy measure of DI receipt may, for example, have included some spouses or dependents of persons receiving DI benefits rather than actual beneficiaries or may have excluded persons who did not report receiving Social Security benefits. Moreover, the creation of a disability beneficiary category that included DI beneficiaries, concurrent DI/SSI beneficiaries, and SSI-only recipients may have masked some important differences among beneficiary groups. Persons receiving DI typically have higher levels of work experience than persons who receive SSI and may therefore have better employment opportunities. DI beneficiaries (n=58) and concurrent DI/SSI beneficiaries (n=45) comprised only 31.3 percent of the total sample (n=329), however. The characteristics of the high number of SSI-only cases (n=226) may have biased the employment analysis results. Omitted variable bias might also have impacted results. Information on local unemployment rates could have been a useful predictor of employment outcomes had the data allowed for such a geographic level of detail. Information on access to transportation and child care could also have been useful predictors of employment. The small sample

size in the employment analysis (n=329) is also a methodological limitation inasmuch as a small sample may not be truly representative of the population of disability beneficiaries who have substance use disorders. In addition, the small sample size reduces the power of the empirical analysis, making it difficult to detect significant effects.

Possible substantive reasons for the lack of noted impact of treatment on employment outcomes include employer hesitation to hire persons with substance abuse disorders or other disabilities (Acemoglu and Angrist, 2001; DeLeire, 2003; Gerry, 2005). Also, persons participating in certain types of treatment may have very limited amounts of time to search for or participate in employment. Persons participating in inpatient services, for example, will not have the freedom to participate in employment until they are discharged. Other concurrent barriers to employment may also exist which were not able to be measured here. The availability of transportation and child care, for example, can be important factors in the decision to seek employment (Speigman and Norris, 2004; Zedlewski et al., 2003). Persons who do not have ready access to affordable transportation or child care may not find it feasible to pursue participation in the labor market. The costs and complications of arranging such services may be strong disincentives to employment.

CONCLUSION

This chapter has explored the relationship among disability benefit receipt, participation in substance abuse treatment and employment outcomes for persons with alcohol or illicit drug abuse or dependence. The positive findings that show beneficiaries

are more likely to access treatment than those not on the disability rolls are offset to some degree by null findings that suggest that beneficiaries who participate in treatment are no more or less likely to be employed than those who do not participate in treatment, at least in the short term. Additional research, using longitudinal data, could provide a better understanding of the dynamic nature between treatment participation and employment rates for the beneficiary population. The following chapter will synthesize these results with the background information and additional results discussed in the previous three chapters to formulate policy recommendations for SSA and persons interested in exploring these issues further.

CHAPTER 5

CONCLUSION

Introduction

The public disability benefit system in the US is of increasing interest to public policy researchers as the number of beneficiaries and the corresponding financial burden of the system continue to grow at a fast pace. As one of the larger components of the US welfare state, the public disability benefit system is a highly visible representation of the dominant social constructions of disability in the US. The public disability system is primarily comprised of two programs run by the federal Social Security Administration (SSA), Social Security Disability Insurance (DI) and Supplemental Security Income (SSI). An assumption underlying both of these programs is that persons with disabilities who are unable to work are deserving of a certain level of financial support. The condition of having a disability is viewed as a problem that is appropriately remedied by the welfare state.

Much of the research currently conducted on the US disability system focuses on ways to reduce the growth and subsequent expense of the two disability benefit programs. Some of the research focuses on ways to decrease rates of entry to the program while other research examines ways to increase rates of exit from the program by encouraging higher levels of employment amongst beneficiaries. Of interest here has been how the US disability system chooses to address substance abuse, a condition that may or may not be considered a disability, and how US disability policies towards substance abuse may have implications for the broad organizational goal of increasing employment for those

associated with the disability system. To provide a comparative context, this research also examined how the social construction of substance abuse embodied within the US disability system compares to the manner in which other national disability systems address issues of substance abuse. The analysis conducted here sought to assess these issues by examining how disability policy makers, both domestically and abroad, view substance abuse in relation to disability benefit programs. Available evidence about the relationship among disability benefit receipt, substance abuse, substance abuse treatment and employment outcomes within the US disability benefit system were also examined. This chapter will revisit the primary aims of this study, briefly recap the conclusions that were reached for each research question, suggest policy recommendations, and describe areas for further research. Table 5.1 provides an abbreviated summary of the results discussed in more detail in each of the prior chapters, summarizing what can and cannot be stated with authority at the conclusion of this set of analyses. Following Table 5.1, separate sections delve into greater detail to discuss results, policy recommendations and future research directions. Each section is headed by a summary statement that can be corroborated by the data analyses conducted in the prior chapters.

Table 5.1 Research questions and results

Research question	Results
1) Do other national disability systems consider substance abuse a disabling condition?	Yes
2) Do other national disability systems require treatment participation in exchange for benefit receipt?	Some do
3) Is substance abuse more prevalent among American adults with disabilities than among other persons?	Yes
4) Is substance abuse more prevalent among American adult disability beneficiaries than among the general population?	Yes
5) Are persons with substance abuse disorders who receive public disability benefits in the US more likely to participate in substance abuse treatment?	Yes
6) Are disability beneficiaries with substance use disorders who participate in substance abuse treatment more likely to be employed?	No

Summary

1) Other national disability systems consider substance abuse a disabling condition. Obviously, the manner in which countries define disability impacts whether certain conditions will qualify an applicant for benefits or not. Each of the nine other countries studied - Australia, Canada, Germany, Japan, the Netherlands, Norway, South Africa, Sweden, and the United Kingdom - have policies which allow persons with a primary diagnosis of substance abuse to receive disability benefits. Their social constructions of disability essentially hinge on a diminished capacity to work due to the presence of a medical condition. Substance abuse is considered an acceptable condition within this context, a condition which is deserving of due consideration within the public

disability benefit system. It is not the medical condition per se that is of issue, rather it is the impact of that condition on the ability to work. The US disability programs have a similar work-based definition of disability but have chosen to eliminate eligibility for benefits for those with substance use disorders.

US disability policy diverged from that of other nations in 1996 when the Contract with America Advancement Act was passed. The Act was proposed by conservative legislators and actually contained ten separate bills including one early version of welfare reform legislation. With the passage of the Act, SSA was no longer allowed to grant disability benefits to persons whose primary diagnosis was one of substance abuse or dependence. The definition of disability was effectively narrowed to a group of persons who were deemed more “deserving” of disability benefits. In contrast to the idea that persons with disabilities are deserving dependents of benefits, the dominant social construction of substance use in the US remains moralistic, essentially labeling persons with substance use disorders as deviant (Schneider and Ingram, 1993). The passage of the Contract with America Act provides evidence that the strength of this deviance view was strong enough to remove persons with substance abuse from the population of persons with disabilities, a population that is considered deserving of benefits.

This negative view of substance use has permeated disability programs and other social programs in the US, as restrictions are also placed on persons with substance use disorders if they attempt to access public income, nutrition, and housing assistance. Further research into whether similar welfare systems in other countries place certain conditions on persons with substance abuse would provide an interesting counterpart to

the current research. A finding that other countries are more open to providing income, nutrition, and housing assistance to persons with substance use disorders would provide more support for the idea that these nations have a generally more positive social construction of substance abuse than the US.

Conservative views have dominated the American political landscape since the passage of the Act. Reciprocal responsibilities are expected for all social programs and employment participation is strongly encouraged. Disability programs have changed accordingly, as have other welfare programs. Whereas such programs previously either did not concern themselves with employment or else dedicated their efforts towards fostering the “job readiness” of their clients through the provision of training and education, current programs are more likely to embrace “work-first” philosophies. Encouraging clients to enter work as soon as possible, with as minimal a level of preparation as possible, is the new norm within social programs. Within the disability programs, this idea has often been operationalized through the implementation of policies that do not allocate either the time or the resources necessary to address possible barriers to employment such as substance abuse.

The results of the recent 2006 mid-term elections have changed the balance of power in the federal government, however, giving the more liberal Democratic Party control of the House and Senate. Historically, this party has been more favorable in providing resources towards social welfare recipients and might therefore be more apt to revisit the issue of substance abuse within federal disability benefit programs. The current employment-focused programs have received a strong measure of support from both parties, as well as from disability advocates. Disability and addiction supporters

interested in advocating for changes within the public disability system around issues of substance abuse would be wise to tie suggested policy changes to programs aimed at increasing levels of employment for beneficiaries.

2) Some other national disability systems require participation in treatment either prior to or in exchange for receipt of benefits. Many of the other countries studied have implemented stringent rehabilitation policies within their disability programs. The policies apply to all types of medical conditions and are not specific to substance use disorders, yet provide a built-in means to encourage participation in treatment for persons with substance use disorders. The US disability system as a whole has much to learn from these other countries. The practices used within these other disability systems are similar in some ways to the methods used by private disability insurers in the US. In an attempt to control costs, private insurers will often provide health care maintenance services to their clients. Private insurers may, for example, contract with caseworkers who will provide either in-person or remote consultation with clients in the hopes of increasing treatment adherence. Persons with diabetes, for example, will be encouraged to make lifestyle changes that can significantly reduce the impact of diabetes on their health and the resultant medical costs. While SSA does not currently utilize such practices, other countries do. South Africa, as an example, uses a practice known as “maximum correction” in which full treatment participation and compliance is expected for a medical condition prior to the award of disability benefits. Requiring persons with substance abuse disorders to participate in treatment would be a

similar practice. Obviously, guidelines would have to be developed around the types and intensity of treatment that would meet the participation requirements.

The US public disability system had a treatment requirement in place for certain beneficiaries with substance use disorders prior to 1996, when US disability programs did allow benefits for substance use disorders. SSI recipients with this diagnosis were supposedly required to participate in treatment but no specific funding for treatment was provided and the monitoring of compliance with the treatment requirement was lax. Interestingly, only persons with substance abuse were required to participate in treatment. Persons with other conditions that could have responded well to treatment, such as persons with certain forms of mental illness, faced no such requirements. Again, the social construction of substance abuse separated out those with this condition for different treatment from others who had more socially acceptable forms of disability. Substance abuse as a co-occurring condition might still be singled out for mandatory treatment based on the likelihood of improving the chances of returning to work, notwithstanding the lack of correlation found here, as the negative effects of substance abuse on employment have been well documented elsewhere.

Currently in the US, there is no requirement for participation in treatment even if substance abuse is noted as a secondary disability. Many of the behaviors expected in exchange for disability benefits, both within the US and within other countries, are related to participation in the labor market, emphasizing a shift towards higher levels of commodification. The US is one of the most commodifying nations among those studied yet each of the other countries is concurrently experiencing a shift towards higher levels of commodification as well. The decision to narrow the definition of disability in the US

therefore cannot be tied specifically to levels of commodification. Whereas in the past, some nations had disability programs that were decidedly more universal than the US program, each has been moving towards more selective types of programs that are more restrictive and have more requirements for seeking treatment and/or employment. Even when issues of employment have gained increasing levels of importance, other countries have found ways to include persons with substance use disorders within their disability programs. The US clearly stands alone on this issue.

3) Substance abuse is more prevalent among persons with disabilities than among the general population. Results suggest that the presence of a disability increases the odds of alcohol dependence, illicit drug abuse and illicit drug dependence for adults in the US. While the presence of a disability was not significantly related to the odds of alcohol abuse, the presence of a disability was found to significantly increase the odds of alcohol dependence by a factor of 2.1, the odds of illicit drug abuse by a factor of 1.4, and the odds of illicit drug dependence by a factor of 2.6 for persons who had disabilities. The nature of the data used for this portion of the analysis did not allow for the definitive determination of nature of the causality between disability and substance abuse. Future longitudinal research would be helpful in teasing out whether disability typically precedes abuse or dependence, whether abuse or dependence typically precedes disability, or if the two conditions occur concurrently. Results from such research could provide suggested ways of targeting and coordinating services and supports to lessen the individual and societal impact of these conditions.

4) Available data suggest that certain types of substance abuse are more prevalent among disability beneficiaries. Since the prior analysis found that substance

abuse is more prevalent among persons with disabilities than among the general population, one would assume that substance abuse is more common among the sub-set of adults who are disability beneficiaries than among the general population. The data supported such findings for some types of abuse and dependence among certain beneficiaries. Alcohol abuse was found to be more common among DI and SSI recipients, illicit drug dependence was found to be more common among SSI recipients, and any type of abuse or dependence was found to be more common among DI beneficiaries than among the general population. No other relationships were found to be statistically significant. Since the small sample size used for this analysis likely impacted the significance of the results, future research should attempt to repeat this analysis using a larger sample of disability beneficiaries.

Substance use disorders are an issue for a meaningful portion of beneficiaries. Given these results, it would appear that the applicant pool for disability benefit programs would be a natural place to screen for substance use disorders. Collaboration between the federal agency interested in the prevention and treatment of substance abuse, the Substance Abuse and Mental Health Services Administration (SAMHSA), and SSA could serve to identify persons either at risk for or currently having a substance use disorder so that they could be directed to appropriate treatment resources. While such screening is likely of interest to SAMHSA, whether or not screening for such disorders is of interest to SSA may be related to whether the presence of these conditions impacts broader organizational goals. The following two sections tackle this issue.

5) Persons with substance use disorders who receive disability benefits are more likely to participate in treatment. The relationship between disability benefit

receipt and participation in substance abuse treatment was examined to determine whether benefit receipt is an independent correlate of treatment. In other words, the analysis tested whether persons with substance use disorders who receive disability benefits were more likely to participate in treatment than persons with substance use disorders who did not receive disability benefits. Of interest was whether persons with substance abuse disorders who receive disability benefits are more, less or similarly likely to participate in substance abuse treatment than those who do not receive disability benefits. The data confirmed that beneficiaries were more likely to participate in treatment than non-beneficiaries and that beneficiaries are more likely to participate in multiple types of treatment.

The current SSA disability system does not directly provide any services or supports to address substance abuse yet these findings show that participation in the disability system is linked to an unintended positive policy outcome: an increase in treatment participation. What the system does provide, however, is increased access to public health insurance, an important determinant of the ability to participate in treatment. The presence of public health insurance was found to increase the odds of participating in substance abuse treatment while the presence of private health insurance was found to decrease the odds of receiving treatment, even when controlling for other variables. Receipt of public health insurance increased the probability of participating in substance abuse treatment by three percent while receipt of private health insurance decreased the probability of participating in treatment by the same amount. This result could be explained by the fact that public health insurance provides greater access to substance abuse treatment at lower out-of-pocket costs to consumers than private health

insurance. Issues of parity likely exist, with public insurance providing better access to services for behavioral health issues than private insurers. Further research around this issue could be of interest to the Center for Medicaid and Medicare Services (CMS) as they are the agency responsible for the health insurance programs provided to disability beneficiaries. Research could examine whether participation in treatment for substance abuse leads to overall reduced healthcare costs at an individual level as substance use is curtailed.

6) Data do not confirm, however, that beneficiaries who participate in substance abuse treatment are more likely to be employed. The second set of quantitative analyses addressed whether or not beneficiaries who do participate in treatment are more likely to be employed, addressing the extent to which substance abuse treatment is a mediating factor in whether persons with substance abuse disorders work for pay. The presence of a significant difference in effects between those who participate in treatment and those who do not would have provided some support for the idea that SSA should be investing time and resources towards encouraging treatment for beneficiaries who have substance abuse issues. The data analyzed here do not support this claim, however. The results of the employment analysis did not find any significant effect of treatment receipt on employment for beneficiaries. Beneficiaries with substance use disorders who participated in treatment during the past year had approximately a three percent higher probability of being employed compared to those who did not participate in treatment, although this effect was not statistically significant. Several substantive and methodological explanations for these findings were previously discussed and will not be revisited here. Suffice it to say that the findings presented here do not

provide a strong impetus for encouraging SSA to change its policies towards persons with substance abuse if employment is still the paramount goal.

Conclusion

In general, the results support the idea that while some substance use disorders are more likely among certain disability beneficiaries and while beneficiaries are more likely to access treatment than persons with substance use disorders who are not beneficiaries, those who access treatment are no more likely to return to employment than those who do not access treatment. Rates of treatment participation could be increased if SSA were to implement a well-defined policy which required that beneficiaries with substance abuse disorders participate in treatment. To extend a requirement for treatment to persons with substance use disorders, disorders not even recognized as a disability, would be a departure from current practice on two fronts, however. First, substance use disorders would have to be recognized as employment barriers substantial enough to require intervention from SSA. The US disability system is reflective of the dominant social construction of substance abuse in the US, a social construction which considers substance abuse to be a disease of the will and therefore not open for consideration as a legitimate barrier to employment. This social construction differs from those found in the other countries studied. Whereas current disability employment programs sponsored by SSA in the US attempt to address commonly accepted barriers to employment such as transportation or child care, substance abuse is not specifically addressed.

Second, benefit receipt would have to be somehow linked to participation in treatment. The current public disability system has neither the manpower nor the

technology necessary to effectively implement and maintain such a policy. In addition, establishing such a requirement would beg the question as to why beneficiaries with other types of disabilities are not also monitored for treatment compliance. Even if such requirements were restricted to so-called “diseases of the will”, conditions related to obesity or smoking could be argued to fall within these parameters. Rather than singling out persons with substance use disorders, it would seem that for any diseases in which treatment adherence has a clear benefit, such a requirement could be helpful in improving both the medical condition of the beneficiary and the chances of employment for the beneficiary.

Intended or not, SSA disability programs are linked to an increase in treatment participation for persons with substance use disorders. While available data could not support a causal association between disability program participation and treatment participation, it would stand to reason that the provision of income support and medical benefits would be important factors in enabling entry into treatment. Although helping people to access the substance abuse treatment they need is a positive social outcome, it is not part of the organizational mission of SSA. To encourage SSA to develop new policies and procedures that would result in even greater levels of treatment participation would have stronger merit if participation in treatment could be tied to employment. The data used for the analyses discussed here did not provide support for this idea. Increasing the rate of exit from disability programs is also of interest to SSA. Future research could use longitudinal data to examine whether those who participated in substance abuse treatment were more likely to leave the disability rolls than beneficiaries with substance use disorders who did not participate in treatment, controlling for other factors.

The current US environment of commodification sets the framework in which it is increasingly important for disability programs to encourage and support opportunities for employment. From a state level in which the labor participation of all citizens is strongly encouraged to an individual level in which employment provides a combination of tangible and intangible benefits to a person with a disability, employment participation is important within American society. State welfare systems send messages about the importance of work in determining the societal standing of individuals. The US system strongly sends a message that employment is expected for all who are able.

Given that a strong link between treatment participation and employment was not found here, one cannot argue, however, that the promotion of treatment would be helpful in furthering employment for disability beneficiaries with substance use disorders. This finding should be tempered, however, given some of the shortcomings of the analysis. Future research could delve deeper into the connection between treatment and employment for this population. Many studies are currently being conducted by SSA to understand how employment can be facilitated for the beneficiary population in the US, yet none are focusing specifically on the population with substance use disorders. SSA itself has access to a wealth of information on its beneficiaries and is encouraged to consider supplementing this data with substance use screening information to further research these issues.

APPENDICES

2002 and 2003 NSDUH abuse and dependence questions

Substance abuse questions.

- 1) Sometimes people who use this drug have serious problems at home, work, or school such as neglecting their children, missing work or school, doing a poor job at work or school, losing a job or dropping out of school. During the past 12 months, did using this drug cause you to have serious problems like this either at work, school, or home?
- 2) During the past 12 months, did you regularly use the drug and then do something where using the drug might have put you in physical harm?
- 3) During the past 12 months, did using the drug cause you to do things that repeatedly got you in trouble with the law?
- 4) During the past 12 months, did you have any problems with family or friends that were probably caused by your use of the drug? Did you continue to use the drug even though you thought it caused problems with family or friends?
(SAMHSA, 2004c)

Substance dependence questions.

- 1) During the past 12 months, did you need to use more of the drug than you used to in order to get the effect you wanted? During the past 12 months, did you notice that using the same amount of the drug has less effect on you than it used to?
- 2) (Only for cigarettes, alcohol, cocaine, heroin, analgesics, sedatives, stimulants:

During past 12 months, did you cut down or stop using the drug at least one time?

(For cocaine/crack only):

During the past 12 months, have you felt kind of blue or down when you cut down or stopped using the drug? During the past 12 months, did you have ____ or more of these symptoms after you cut back or stopped using the drug? (The symptoms and number needed to meet this criterion varies by drug).

- 3) During the past 12 months, did you try to set limits on how often or how much of the drug you would use?

If above was answered yes:

Were you able to keep to the limits you set or did you often use more than you intended to?

- 4) During the past 12 months, did you want to or try to cut down or stop using the drug? During the past 12 months, were you able to cut down or stop using the drug every time you wanted to or tried to?

- 5) During the past 12 months, was there a month or more when you spent a lot of your time getting or using the drug? During the past 12 months, was there a month or more when you spent a lot of time getting over the effects of the drug?

- 6) This question is about important activities such as working, going to school, taking care of children, doing fun things such as hobbies and sports, and spending time with friends and family. During the past 12 months, did using

the drug cause you to give up or spend less time doing these types of important activities?

- 7) During the past 12 months, did you have any problems with your emotions, nerves or mental health that were probably caused or made worse by your use of the drug? Did you continue to use the drug even though you thought it was causing you to have problems with your emotions, nerves or mental health? During the past 12 months, did you have any physical health problems that were probably caused or made worse by your use of the drug? Did you continue to use the drug even though you thought it was causing you to have physical problems? (SAMHSA, 2004c).

BIBLIOGRAPHY

Acemoglu, D., and Angrist, J. (2001). Consequences of employment protection? The case of the Americans with Disabilities Act. *Journal of Political Economy*, vol. 109, October 2001, pp. 915–957.

Akins, S., Mosher, C., Rotolo, T., and Griffin, R. (2003). Patterns and correlates of substance use among American Indians in Washington State. *Journal of Drug Issues*, Winter 2003, pgs. 45-71.

Albrecht, G.L., Seelman, K.D., and Bury, M., Editors (2001). *Handbook of Disability Studies*. Thousand Oaks, CA: Sage.

Allmendinger, J. (1994). Review essay of *Age, Class, Politics and the Welfare State*, by Pampel and Williamson. *Contemporary Sociology*, 23 (4): 532-534, July 1994.

American Behavioral Healthcare and National Association of State Alcohol and Drug Abuse Directors, Inc. (1999). Public substance abuse and managed behavioral healthcare. *Behavioral Healthcare Tomorrow*, 8(1): 25-30.

American Psychiatric Association. (1994). *Diagnostic and Statistical Manual of Mental Disorders - Fourth Edition (DSM-IV)*. Washington, D.C.: American Psychiatric Association.

Australian Institute of Health and Wellness. (2002). *Statistics on drug use in Australia, 2002*. Available: <http://www.aihw.gov.au/publications/phe.sdua02/sdua02.pdf> (Accessed August 21, 2006).

Bachman, S.S., Drainoni, M., and Tobias, C. (2004). Medicaid managed care, substance abuse treatment, and people with disabilities: Review of the literature. *Health and Social Work*, Vol. 29, No. 3, August 2004, 189-196.

Bammer, G., Hall, W., Hamilton, M. and Ali, R. (2002). Harm minimization in a prohibition context – Australia. *The Annals of the American Academy*, 582, July 2002, 80-93.

Berkowitz, M. (1997). Linking beneficiaries with return-to-work services. In *Disability: Challenges for Social Insurance, Health Care Financing, and Labor Market Policy*, edited by V.P. Reno, J.L. Mashaw, and B. Gradison. Washington, DC: National Social Insurance Association, pp. 41-46.

Berkowitz, M. (2003). The Ticket to Work program: The complicated evolution of a simple idea. In *Paying for Results in Vocational Rehabilitation: Will Provider*

Incentives Work for Ticket to Work? Edited by K. Rupp and S. Bell, Washington, DC: The Urban Institute, pp. 13-30.

Bilder, S. and Mechanic, D. (2003). Navigating the disability process: Persons with mental disorders applying for and receiving disability benefits. *The Milbank Quarterly*, Vol. 81, No. 1.

Bill, A., Cowling, S., Mitchell, W., and Quirk, V. (2004). *Creating effective employment solutions for people with psychiatric disability*, Working paper No. 04-06. Callaghan, Australia: Centre of Full Employment and Equity, The University of New Castle.

Bollinger, L. (2004). Drug law and policy in Germany and the European community: Recent developments. *Journal of Drug Issues*. Summer 2004. 491-509.

Bombardier, C., Blake, K., Ehde, D., Gibbons, L., Moore, D., and Kraft, G. (2004). Alcohol and drug abuse among persons with multiple sclerosis. *Multiple sclerosis*, 2004, Vol. 10, 35-40.

Bomhof, K.J. (2005). *Addressing substance abuse in the workplace: The legal challenges to implementing a drug and alcohol testing program*. Vancouver, BC: Lawson Lundell, LLP.

Bond G R, Drake R E, Mueser K T et al. Assertive community treatment for people with severe mental illness: Critical ingredients and impact on patients. *Disease Management & Health Outcomes* 2001, 9, 141-159.

Boyd, D. (2004). *State finances: Not out of the woods yet*. Presented at Federation of Tax Administrators; 2004 Sep 20; Burlington, VT.

Bullington, B. (2004). Drug policy reform and its detractors: The United States as the elephant in the closet. *Journal of Drug Issues*. Summer 2004. 687 – 721.

Canadian Government. (2003). *Defining disability: A complex issue*. Ottawa, ON: Government of Canada.

Center for Medicaid and Medicare Services (CMS). (2003). *Medicaid enrollment and beneficiaries: Selected fiscal years*. Washington, DC: CMS.

Central Intelligence Agency. (2005). *The World Factbook*. Available: www.cia.gov/cia/publications/factbook/fields/2086.html . (Accessed 8/11/05).

Chang, C.F., Laurel, L.J., Bailey, J.E., Martins, M., Gibson, W., Schaberg, K.A., Mirvis, D.M., and Applegate, W.B. (1998). Tennessee's failed managed care program for mental health and substance abuse services. *Journal of the American Medical Association*, 279(11): 864-869.

Clarke, J. and Piven, F.F. (2001). United States: An American welfare state? In *International Social Policy: Welfare Regimes in the Developed World*, P. Alcock and G. Craig, Editors. New York: Palgrave Macmillan.

Clayton, A. and Honeycutt, T. (2004). Disability benefit systems in Australia. In *Learning from others: Temporary and partial disability programs in nine countries*. Honeycutt, T. and Mitra, S., Editors. New Brunswick, NJ: Program for Disability Research. pp 96-112.

Corkrey, R. and Parkinson, L. (2002). A comparison of four computer-based telephone interviewing methods: Getting answers to sensitive questions. *Behavior Research Methods, Instruments, and Computers*, 34(3) 354-363.

Cowan, T. R. (1987). Drugs and the workplace: To drug test or not to test? *Public Personnel Management*, 16, no. 4: 313-322.

Critzer, J. (1983). Review essay of *The Development of Welfare States in Europe and America*. (1981). P Flora, AJ Heidenheimer, Ed. *American Political Science Review*, 77, 495-496.

Crome, I. (1999). Substance misuse and psychiatric co-morbidity: towards improved service provision. *Drugs: education, prevention, and policy*, Vol. 6, No. 2, 1999.

Dean, D. and Mörk, T. (2004). Temporary and partial disability pension programs in Norway. In *Learning from others: Temporary and partial disability programs in nine countries*. Honeycutt, T. and Mitra, S., Editors. New Brunswick, NJ: Program for Disability Research. pp 197-212.

Dean, D., Prins, R. and Veerman, T. (2004). Administration and reforms to the Dutch disability pension system. In *Learning from others: Temporary and partial disability programs in nine countries*. Honeycutt, T. and Mitra, S., Editors. New Brunswick, NJ: Program for Disability Research. pp 172-196.

Deck, D.D., McFarland B.H., Titus J.M., Laws K.E., and Gabriel R.M. (2000). Access to substance abuse treatment services under the Oregon Health Plan. *Journal of the American Medical Association*, 284(16): 2093-2099.

Decker, P., and Thornton, C. (1995). The long-term effects of transitional employment services. *Social Security Bulletin*, vol. 58, winter 1995, pp. 71-81.

Deke, J. and Peikes, D. (2003). State Partnership Initiative: Services delivered through March 2003. Report submitted to the Social Security Administration, Rehabilitation Services Administration, Substance Abuse and Mental Health Services

Administration, and U.S. Department of Labor. Princeton, NJ: Mathematica Policy Research, Inc.

DeLeire, T. (2003). The Americans with Disabilities Act and the employment of people with disabilities. In *The Decline in Employment of People with Disabilities: A Policy Puzzle*, edited by David Stapleton and Richard Burkhauser. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research.

Denizet-Lewis, B. (2006). An anti-addiction pill? *The New York Times Magazine*, June 25, 2006. Pgs 48-53.

Department of Health and Human Services. (2004a). *Administration for Children and Families: TANF caseloads reported as of 12/02/03*. http://www.acf.hhs.gov/news/press/2003/mar03_jun03.htm (April 28, 2004).

Dickey, B., Azeni, H., Weiss, R. and Sederer, L. (2000). Schizophrenia, substance use disorders, and medical co-morbidity. *The Journal of Mental Health Policy and Economics*, 3, 27-33.

Dodge, R., Sindelar, J., and Sinha, R. (2005). The role of depression symptoms in predicting drug abstinence in outpatient substance abuse treatment. *Journal of Substance Abuse Treatment*, 28, 189-196.

Dorn, N. (2004). UK policing of drug traffickers and users: Policy implementation in the contexts of national law, European traditions, international drug conventions, and security after 2001. *Journal of Drug Issues*. Summer 2004. 533 – 550.

Drainoni, M. and Bachman, S. (1995). Overcoming treatment barriers to providing services for adults with dual diagnosis: Three approaches. *Journal of Disability Policy Studies*, 1995, 6, 1: 43-55.

Esping-Anderson, G. (1990). *The Three Worlds of Welfare Capitalism*. Princeton, NJ: Princeton University Press.

Ettner, S.L., Huang, D., Evans, E., Ash, D.R., Hardy, M., Jourabchi, M., and Hser, Y. (2006). Benefit-cost in the California treatment outcome project: Does substance abuse treatment ‘pay for itself’? *Health Services Research*, 41:1, 192-213.

European Monitoring Centre for Drugs and Drug Addiction. (2006). Profiles (Germany, Netherlands, Norway, Sweden, UK). Available: <http://www.emcdda.eu.int> . Accessed April 30, 2006.

Ford, W.E. and Luckey, J.W. (1983). Planning alcoholism services: A technique for projecting specific service needs. *The International Journal of Addictions*, 18:319-331.

Ford, W.E., Luckey, J.W. and Wisemand, B. (1978). *An empirical needs assessment for alcoholism services: Implications for public policy*. Paper presented at Second National Conference on Needs Assessment in Health and Human Services. Louisville, KY: University of Louisville.

Fraker T and Moffitt R. The effects of food stamps on labor supply: A bivariate selection model. *Journal of Public Economics* 1988. 35(1): 25–56.

Frank, R. and McGuire, T. (1997). Savings from a Medicaid carve out for mental health and substance abuse services in Massachusetts. *Psychiatric Services*, 48(9): 1147-52.

French, M.T., Rachal, J.V., Harwood, H.J. and Hubbard, R.L. (1990). Does drug abuse treatment affect employment and earnings of clients? *Benefits Quarterly*, Vol. VI, No. 2, 58 – 67.

French, M.T., Salome, H.J., and Carney, M. (2002). Using the DATCAP and ASI to estimate the costs and benefits of residential addiction treatment in the State of Washington. *Social Science and Medicine*, 55 (12): 2267-82.

Frisman, L.K. and Rosenheck, R.A. (1997). The relationship of public support payments to substance abuse among homeless veterans with mental illness. *Psychiatric Services*, 48: 792-795.

Fujiura, G.T., & Rutkowski-Kmitta, V. (2001). Counting disability. In G.L. Albrecht, K.D. Seelman, & M. Bury (Eds.), *Handbook of disability studies*. Thousand Oaks, CA: Sage.

General Accounting Office. (1994). *Social Security: Major changes needed for disability benefits for addicts*. GAO/HEHS-94-128. Washington, DC: GAO.

General Accounting Office. (1997). *Social Security: Disability Programs Lag in Promoting Return to Work, Letter Report to Congressional Committee*. Washington, DC: GAO.

Gerevich, J. (2005). Binarisms, regressive outcomes and biases in the drug policy interventions: A theoretical approach. *Substance Use and Misuse*, 40: 451-472.

Gerry, M. (2005). Comprehensive Work Opportunity Initiative: Overcoming Multiple Barriers to Employment (Figure 1). *DRI News*, Urbana-Champaign, Illinois: University of Illinois, vol. 5, no 2, Summer 2005.

Gilbert, N. (2004). *Transformation of the Welfare State: The Silent Surrender of Public Responsibility*. New York: Oxford University Press.

Gilson, S.F., Chilcoat, H.D., and Stapleton, J.M. (1996). Illicit drug use by persons with disabilities: Insights from the National Household Survey on Drug Abuse. *American Journal of Public Health*, November 1996, Vol. 86, No. 11.

Goldberg, T. (2004). The evolution of Swedish drug policy. *Journal of Drug Issues*. Summer 2004. 551-576.

Government of Canada. (2006). *Living with disability in Canada: An economic portrait. Chapter 5 – Income sources for persons with disabilities*. Available: <http://www.sdc.gc.ca/> (Accessed June 10, 2006).

Grossman, L.S., Willer, J.K., Miller, N.S. et al. (1997). Temporal patterns of veterans' psychiatric service utilization, disability payments, and cocaine use. *Journal of Psychoactive Drugs*. 29:285-290.

Growick, B (2002). Statement before the Subcommittee on Social Security, House Committee on Ways and Means. Hearing on Social Security disability programs' challenges and opportunities, July 11, 2002. Available at <http://waysandmeans.house.gov/legacy/socsec/107cong/7-11-02/7-11grow.htm>. (Accessed September 1, 2005).

Halpern, S.D. and Mechem, C.C. (2001). Declining rate of substance use throughout the month. *American Journal of Medicine*. 110:347-351.

Handler, JF and Hasenfeld, Y. (1997). *We the Poor People: Work, Poverty and Welfare*. New haven, CT: Yale University Press.

Harwood, H., Fountain, D. and Livermore, G. (1998). *The Economic Costs of Alcohol and Drug Abuse in the United States 1992*. Rockville, MD: NIDA.

Hawkins, D.J., Catalano, R.F., and Miller, J. (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention. *American Psychological Association Psychological Bulletin*, 112 (pg. 64-105).

Heidenheimer, AI, Hecllo, H, and Adams, CT. (1975). *Comparative public policy: The politics of social choice in Europe and America*. New York: St. Martin's Press.

Heinemann, A.W., Goranson, N., Ginsburg, K., and Schnoll, S. (1989). Alcohol use and activity patterns following spinal cord injury. *Rehabilitation Psychology*, 34:191-205.

Heiss, F., Hurd, M., & Börsch-Supan, A. (2003). Healthy, wealthy, and knowing where to live: Trajectories of health, wealth and living arrangements among the oldest old. Paper for the Conference on the Economics of Aging, Carefree, AZ.

Herbst, M.D., Batki, S.L., Manfredi, L.B. et al. (1996). Treatment outcomes for methadone clients receiving lump-sum payments at initiation of disability benefits. *Psychiatric Services*. 47:119-120, 142.

Heumann, J. E. (1997). *Statement on Barriers Preventing Social Security Disability Recipients from Returning to Work*. Presented to U.S. House of Representatives Committee on Ways and Means, Subcommittee on Social Security, July 23, 1997.

Honeycutt, T. (2004). Program and benefit paths to the Social Security Disability Insurance program. *Journal of Vocational Rehabilitation*, vol. 21, no. 2, pp. 83-94.
Honeycutt, T. and Mitra, S., Editors. (2004). *Learning from others: Temporary and partial disability programs in nine countries*. New Brunswick, NJ: Program for Disability Research.

Honeycutt, T., Terashima, A., and Kohyama, C. (2004). Disability benefit systems in Japan. In *Learning from others: Temporary and partial disability programs in nine countries*. Honeycutt, T. and Mitra, S., Editors. New Brunswick, NJ: Program for Disability Research. pp 153-169.

Houtenville, A.J. (2004). *Disability statistics in the United States*. Ithaca, NY: Cornell University Rehabilitation Research and Training Center. Available: <http://www.disabilitystatistics.org>. Posted May 15, 2003. Accessed April 23, 2004.

Houtenville, A. J. (2006). *Disability statistics in the United States*. Ithaca, NY: Cornell University Rehabilitation Research and Training Center on Disability Demographics and Statistics (StatsRRTC), www.disabilitystatistics.org. Posted April 4, 2005. Accessed May 13, 2006.

Huberman, A.M. and Miles, M.B. (1998). Data management and analysis methods, in: *Collecting and Interpreting Qualitative Materials*, N.K. Denzin and Y.S. Lincoln, eds, Thousand Oaks, CA: Sage Publications.

Hunt, S.R. and Baumohl, J. (2003). Drink, drugs and disability: An introduction to the controversy. *Contemporary Drug Problems*, 20, Spring/Summer 2003, 9-76.

Huo, J., Nelson, M., and Stephens, J.D. (2006) *Decommodification and activation in social democratic policy: Resolving the paradox*. Paper delivered at Fifteenth International Conference of the Council for European Studies Chicago, March 29–April 2, 2006. Available: <http://www.europanet.org/conf/papers/HuoNelsonStephens.pdf> (Accessed May 23, 2006).

Ireys H, White JS, and Thornton C. *The Medicaid Buy-In Program: Quantitative Measures of Enrollment Trends and Participant Characteristics in 2002. Preliminary Report*. Washington, DC: Mathematica Policy Research, Inc., 2003.

Jagannathan, R. (2001). Relying on surveys to understand abortion behaviour: Some cautionary evidence. *American Journal of Public Health*, Vol. 91, No. 11, 1825-1831.

Kandel, D.B. and Davies, M. (1990). Labor force experiences of a national sample of young adult men: The role of drug involvement. *Youth and Society*, 21, 411-45.

Kandel, D.B. and Yamaguchi, K. (1987). Job mobility and drug use: An event history analysis. *American Journal of Sociology*, 92, 836-78.

Knox V, Miller C, and Gennetian LA. *Reforming welfare and rewarding work: A summary of the final report on the Minnesota Family Investment Program*. New York: MDRC, 2000.

Kopels, S. (1995). The Americans with Disabilities Act: A tool to combat poverty. *Journal of Social Work Education*, Fall 1995, Vol. 31, Issue 3.

Kornfeld, R. and Rupp, K. (2000). The net effects of the Project NetWork return-to-work case management experiment on participant earnings, benefit receipt, and other outcomes. *Social Security Bulletin*, vol. 63, no. 1, pp. 12–33.

Kosterman, R., Hawkins, J.D., Guo, J., Catalano, R.F., and Abbott, R.D. (2000). The dynamics of alcohol and marijuana initiation: Patterns and predictors of first use in adolescence. *American Journal of Public Health*, 90(3), 360-66.

Kreutzer, J.S., Witol, A.D., and Marwitz, J.H. (1996). Alcohol and drug use among young persons with traumatic brain injury. *Journal of Learning Disabilities*, 29, 6, November 1996, 643:651.

Kulka, R.A., Eyerman, J. and McNeeley, M.E. (2005). The use of monetary incentives in federal surveys on substance use and abuse. *Journal of Economic and Social Measurement*, 30: 233-249.

Leisering, L. (2001). Germany: Reform from within. In *International Social Policy: Welfare Regimes in the Developed World*, P. Alcock and G. Craig, Editors. New York: Palgrave Macmillan.

Lenke, L. and Olsson, B. (2002). Swedish drug policy in the twenty-first century: A policy model going astray. *The Annals of the American Academy*, July 2002, 582, 64-79.

Li, L. and Ford, J. (1998). Illicit drug use by women with disabilities. *American Journal of Drug and Alcohol Abuse*, August 1998.

Li, L. and Moore, D. (2001). Disability and illicit drug use: An application of labeling theory. *Deviant behavior*, 22:1-21.

Lieberman, R.C. (1995). Comment on social construction. *American Political Science Review*, Vol. 89, No. 2, June 1995, 437-441.

Long, J.S. (1997). *Regression models for categorical and limited dependent variables*. Thousand Oaks, CA: Sage.

Lu, M. and McGuire, T.G. (2002). The productivity of outpatient treatment for substance abuse. *The Journal of Human Resources*, 37, 2 (Spring 2002), 309-335.

Lund, F. (2001). South Africa: Transition under pressure. In *International Social Policy: Welfare Regimes in the Developed World*, P. Alcock and G. Craig, Editors. New York: Palgrave Macmillan.

Lynch, S. (2003). Cohort and life-course patterns in the relationship between education and health: A hierarchical approach. *Demography*, Volume 40, Number 2, May 2003: 309-331.

Marshall, C and Rossman, G.B. (1999). *Designing Qualitative Research*. Thousand Oaks, CA: Sage Publications, Inc.

Mathematica Policy Research. (2007). Ticket to Work: Helping the Disabled Find and Keep Jobs. Available: <http://www.mathematica-mpr.com/disability/tickettowork.asp> (Accessed January 27, 2007).

Mayer, S. (1995). A comparison of poverty and living conditions in the United States, Canada, Sweden, and Germany. In McFate, K., Lawson, R. and Wilson, W.J., Editors. (1995). *Poverty, inequality and the future of social policy: Western states in the new world order*. New York, NY: Russell Sage Foundation.

McCarty, D. and Dilonardo, J. (2003). State substance abuse and mental health managed care evaluation program. *Journal of Behavioral Health Services*, 30(1): 7-11.

McCollister, K.E. and French, M.T. (2003). The relative contribution of outcome domains in the total economic benefit of addiction interventions: A review of first findings. *Addiction*, 98: 1647-59.

McGillivray, J.A. and Moore, M. (2001). Substance use by offenders with mild intellectual disability. *Journal of Intellectual and Development Disabilities*, 26, 4: 297-310.

McLellan, A.T., Lewis, D.C., O'Brien, C.P., and Kleber, H.D. (2000). Drug dependence, a chronic medical illness: Implications for treatment, insurance, and outcomes evaluation. *Journal of the American Medical Association*, October 4, 2000, Vol. 284, No. 13, pgs. 1689-1695.

Metch, L.R. and Pollack, H.A. (2005). Welfare reform and substance abuse. *The Milbank Quarterly*, Vol. 83, No. 1, 65-99.

Ministry of Foreign Affairs of Japan. (2006). *International measures and Japanese assistance for dealing with drug issues*.
<http://www.mofa.go.jp/policy/narcotics/measure0105.html> (Accessed 7/6/2006).

Ministry of Foreign Affairs of Norway. (2006). Norway's social security and health services. Available: <http://odin.dep.no/odin> . (Accessed June 10, 2006).

Ministry of Social Affairs and Employment. (2006). Social protection. Available: <http://internationalezaken.szw.nl> . (Accessed April 13, 2006).

Mitra, S. (2005). Disability: Economic and social development. In *Encyclopedia of Disability*, G. Albrecht, Ed. Sage.

Mitra, S, Coren, A. and Thornton, P. (2004). Recent innovations in Great Britain's disability benefit system. In *Learning from others: Temporary and partial disability programs in nine countries*. Honeycutt, T. and Mitra, S., Editors. New Brunswick, NJ: Program for Disability Research. pp 132-152.

Mitra, S. (2004). Introduction and overview. In *Learning from others: Temporary and partial disability programs in nine countries*. Honeycutt, T. and Mitra, S., Editors. New Brunswick, NJ: Program for Disability Research. pp 1-36.

Mitra, S. and Brucker, D (2004). The Early Intervention Project: An innovative initiative to return disability insurance applicants to work. *Journal of Disability Policy Studies*, vol. 15, no. 3, 159-167. Winter 2004.

Mitra, S., Hauser, R., and Haines, H. (2004). A new focus on temporary disability benefits in Germany. In *Learning from others: Temporary and partial disability programs in nine countries*. New Brunswick, NJ: Program for Disability Research.

Mitra, S. (2006). The capability approach and disability. *Journal of Disability Policy Studies*, Vol. 16, No. 4, 236-247, Spring 2006.

Mooney, G. (2005). Addictions and social compassion. *Drug and Alcohol Review*, March 2005, 24, 137-141.

Moore, D. and Li, L. (1998). Prevalence and risk factors of illicit drug use by people with disabilities. *The American Journal of Addictions*, 7(2): 93-102.

Moore, D. and Polsgrove, L. (1991). Disabilities, developmental handicaps and substance abuse: A review. *The International Journal of Addictions*, 26:65-90.

Moore, D., Greer, B.G., and Li, L. (1994). Alcohol and other substance use/abuse among people with disabilities. *Journal of Social Behavior and Personality*, 9:369-382.

Mueser, K.T., Torrey, W.C., Lynde, D., Singerand, P. and Drake, R.E. (2003). Implementing evidence-based practices for people with severe mental illness.” *Behavior Modification*, vol. 27, no. 3, July 2003, pp. 387–411.

Munger, F. (1998). Immanence and identity: Understanding poverty through law and society research. *Law and Society Review*, 32, 4, 931-967.

National Bureau of Economic Research (NBER). (2003). The NBER’s Recession Dating Procedure. Available: www.nber.org/cycles/recessions.html (Accessed July 30, 2006).

National Council on Disability. (2005). *The Social Security Administration’s efforts to promote employment for people with disabilities: New solutions for old problems*. Washington, DC: NCD.

National Institute on Disability Research and Rehabilitation (NIDRR). (2006). Access to disability data: Chartbook on work and disability. Available: <http://www.infouse.com/disabilitydata/workdisability/appendices-glossary.php> (May 13, 2006).

National Institute on Drug Abuse (NIDA). (2007). Medical consequences of drug abuse. Available: <http://www.nida.nih.gov/consequences> . (Accessed January 27, 2007).

National Institute of Drug Abuse (NIDA). (1993). The economic costs of alcohol and drug abuse in the United States, 1992. Available: http://www.drugabuse.gov/EconomicCosts/AppendixD_3.html. (December 3, 2004).

National Institute on Drug Abuse (NIDA). (1991). *National Household Survey on Drug Abuse: Main Findings 1990*. Rockville, MD: NIDA.

National Institute on Drug Abuse (NIDA). (2003). Research Report Series – Marijuana Abuse. Available: <http://www.nida.gov/ResearchReports/Marijuana/Marijuana2.html> . (Accessed September 29, 2003).

National Organization on Disability. (1998). 1998 National Organization on Disability/Louis Harris & Associates Survey of Americans with Disabilities. Washington DC: NOD.

National School Board Association. 2006. New Monitoring the Future Survey shows that older teen drug use continues to decline but long term progress has stopped among youngest teens. Available: www.nsba.org, accessed 7/19/06.

Navarro, V. and Shi, L. (2003). The political context of social inequalities and health. In *Health and Social Justice: Politics, Ideology, and Inequity in the Distribution of Disease*. R. Hofrichter, Editor. San Francisco, CA: John Wiley and Sons, Inc.

Nelson, C., Damian, G., Modrow, M., Maple, C.C and Winnegar, A. Project Succeed Final Evaluation Report. Albuquerque, NM: December 30, 2004.

Nibali, K. (2000). Testimony given as Associate Commissioner for Disability, from the 9/12/00 hearing on the “Inspector General Report on the Implementation of the Drug Addiction and Alcoholism Provisions of the P.L. 104-121”. Available: http://www.ssa.gov/legislation/testimony_091200.html > (November 16, 2004).

O'Donnell, S. (2006). Casual pot use a disability: Alberta judge. *National Post*. June 29, 2006.

Ogborne, A.C. and Smart, R.G. (1995). People with physical disabilities admitted to a residential addiction treatment program. *American Journal of Drug and Alcohol Abuse*, 21, 1, Feb: 137-145.

Olmstead T, White WD, Sindelar J. (2004). The impact of managed care on substance abuse treatment services. *Health Services Research*, 2004; 39(2): 319-344.

Organisation for Economic Co-operation and Development (OECD). (2003). *Transforming disability into ability: Policies to promote work and income security for disabled people*. Paris, France: OECD.

Pearson, G. (2004). The willingness for substance abuse treatment services among adults in a rural setting. *Brandeis Graduate Journal*, 2004, Vol. 2, 1-9.

Peikes, D. and Sarin, A. (2005). *State Partnership Initiative: Synthesis of impact estimates generated by the state projects' evaluations*. Report submitted to the Virginia Commonwealth University and the Social Security Administration. Princeton, NJ: Mathematica Policy Research, Inc.

Peikes, D. and Paxton, N. (2003). *State Partnership Initiative: Characteristics of participants enrolled through March 2003*. Report submitted to the Social Security Administration, Rehabilitation Services Administration, Substance Abuse and Mental Health Services Administration, and U.S. Department of Labor. Princeton, NJ: Mathematica Policy Research, Inc., December 2003.

Phillips, D.P., Christenfield, N., Ryan, N.M. (1999). An increase in the number of deaths in the United States in the first week of the month – an association with substance abuse and other causes of death. *New England Journal of Medicine*. 341:93-98.

Pickett, C. (2003). *SSI disabled recipients who work*. Washington, DC: Social Security Administration, September 2003.

Prero, A.J., and Thornton, C. (1991). Transitional employment training for SSI recipients with mental retardation. *Social Security Bulletin*, vol. 54, no. 11, 1991, pp. 2–23.

Ragin, CC (1999). The distinctiveness of case-oriented research, *Health Services Research* **34**, 5, Part II, December 1999.

Rangarajan, A., Sarin, A., and Brucker, D. (2005). *Programmes to Promote Employment for the Disabled: Lessons from the United States*. Princeton, NJ: Mathematica Policy Research.

Rea, L.M. and Parker, R.A. (1997). *Designing and conducting survey research: A comprehensive guide, 2nd edition*. San Francisco, CA: Jossey-Bass.

Rehabilitation Services Administration, (2001). Rehabilitation Services Administration Fiscal Year 2001 Annual Report: Report on Federal Activities under the Rehabilitation Act. http://www.ed.gov/about/reports/annual/rsa/2001/rsa_2001_annual_report.pdf. Accessed on August 30, 2005.

Ries, R., Short, R., Dyck, D. and Srebnik, D. (2004). Unlinking disability income, substance use and adverse outcomes in dually diagnosed, severely mentally ill outpatients. *The American Journal of Addictions*, 13:390-397.

Riley, D. (1998). Drugs and drug policy in Canada: A brief review and commentary. Canadian Foundation for Drug Policy. Available: <http://www.cfdp.ca/sen1841.htm> (Accessed August 19, 2006).

Rocha-Silva, L, Mokoko, E., Malaka, D. (1998). Drug use in South Africa. Centre for Alcohol/Drug-related Research, Human Sciences Research Council. Republic of South Africa.

Roessler, R. (2002). TWWIA initiatives and work incentives: Return to work implications. *Journal of Rehabilitation*, vol. 68, no. 3, 2002.

Room, R. (2005). Stigma, social inequality and alcohol and drug use. *Drug and Alcohol Review*, March 2005, 24, 143-155.

Rosen, MI, McMahon, TJ, Lin, H, and Rosenheck, RA. (2006). Effect of Social Security payments on substance abuse in a homeless mentally ill cohort. *Health Services Research*, 41:1, 173.

Ross, S., Dermatis, H., Levounis, P., and Galanter, M. (2003). A comparison between dually diagnosed inpatients with and without Axis II co-morbidity and the relationship to treatment outcomes. *American Journal of Drug and Alcohol Abuse*, Vol. 29, Issue 2, 263-280.

RTI International. (2004). *2003 National Survey on Drug Use and Health: Statistical Inference Report*. December 2004. (Authors: W. Boyle, J. Chromy, A. Clarke, T. Davis, S. Emrich, E. Hirsch, S. Hunter, B. Munoz, C. Murtha, B. Newquist, L. Packer).

Rupp, K. and Bell, S. (2003). *Paying for Results in Vocational Rehabilitation: Will Provider Incentives Work for Ticket to Work?* Washington, DC: Urban Institute Press, 2003.

Rupp, K. and Scott, C. (1998). Determinants of duration on the disability rolls and program trends. In *Growth of Disability Benefits*, K. Rupp and D. Stapleton, Editors. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research.

Rupp, K., Bell, S. and McManus, L. (1994). Design of the Project NetWork return-to-work experiment for persons with disabilities. *Social Security Bulletin*, 1994. vol. 57, no. 2, pp. 3-19.

Salonen, T. (2001). Sweden: Between model and reality. In *International Social Policy*, P. Alcock and G. Craig, Editors. New York: Palgrave Macmillan.

Satel, S.L. (1995). When disability benefits make patients sicker. *New England Journal of Medicine*. 333:794-796.

Scanlon, A. (2002). *State spending on substance abuse treatment*. Washington, DC: National Conference of State Legislatures. Available: <http://www.ncsl.org/programs/health/forum/pmsas.htm> .

Schneider, A. and Ingram, H. (1993). Social construction of target populations: Implications for politics and policy. *American Political Science Review*, Vol. 87, No. 2, June 1993, 34-347)

Schneider, A. and Ingram, H. (2005). Constructing and entitling America's original veterans. In *Deserving and Entitled: Social Constructions and Public Policy*, A. Schneider and H. Ingram, Editors. Albany, NY: State University of New York Press.

Shaner, A, Eckmand, TA, Roberts, LJ, (1995). Disability income, cocaine use, and repeated hospitalization among schizophrenic cocaine abusers: a government sponsored revolving door. *New England Journal of Medicine* 333: 777-783.

Shaner, A., Eckmand, T.A., Roberts, L.J., et al. (1995). Disability income, cocaine use, and repeated hospitalization among schizophrenic cocaine abusers – a government sponsored revolving door? *New England Journal of Medicine*. 333:777-783.

Social Security Administration (2007). Disability and SSI. Available: <http://www.ssa.gov/d&s1.thm> (Accessed January 27, 2007).

Social Security Administration (2003). *Annual Statistical Report on the Social Security Disability Program, 2002*. Baltimore, MD: SSA.

Social Security Administration (2003a), *Disability Planner*. Available: <http://www.ssa.gov/dibplan/dqualify.htm> (December 12, 2003).

Social Security Administration (2003b), Selected Data from Social Security's Disability Program. <<http://www.ssa.gov/OACT/STATS/dibGraphs.html#3>> (December 12, 2003)

Social Security Administration (2005). POMS Section SI 60030.001. Florida Freedom Initiative. Baltimore, MD: SSA, March 2005. Available online at [<http://policy.ssa.gov/poms.nsf/lnx/0560030001?opendocument>]. (Accessed June 8, 2005).

Social Security Administration (2005). SSI. Available online at [<http://www.ssa.gov>]. Accessed June 16, 2005.

Social Security Administration (2005). *Social Security Handbook*. Available online at http://www.ssa.gov/OP_Home/handbook/handbook.05/handbook-0507.html. (Accessed July 20, 2005).

Social Security Administration, (2005a). Disability Insurance Benefit Payments. <http://www.ssa.gov/OACT/STATS/table4a6.html> . (Accessed August 30, 2005).

Social Security Administration, (2005b). Number of Disabled Workers and their Dependents Receiving Benefits, 1970-2004. <http://www.ssa.gov/OACT/STATS/DIbebirs.html> . (Accessed August 30, 2005).

Social Security Administration. *Annual Statistical Report on the Social Security Disability Program, 2002*. Baltimore, MD: SSA, 2003.

Social Security Administration. (2001). *Recipient Characteristics, Table 2*. 2001.

Social Security Administration. (2005b). Number of disabled workers and their dependents receiving benefits, 1970-2004. <http://www.ssa.gov/OACT/STATS/DIbebirs.html> . Accessed August 30, 2005b.

Social Security Advisory Board. (2003). *The Social Security Definition of Disability*. Washington, D.C.: Social Security Advisory Board. October 2003.

Social Security Administration. (2005). Annual Statistical Supplement, Supplemental Security Record. Available: <http://www.ssa.gov/policy/docs/statcomps/supplement/2005/7e.html> (Accessed November 22, 2005).

Speigman, R. (1997). *Effects of the elimination of SSI drug addiction and alcoholism eligibility*. Available: <http://www.saprp.org/FundedGrants/FindingsSummaries/Speigman.html> (December 11, 2003).

Speigman, R. and Norris, J. (2004). Child care essential ingredient for sustained, full-time work for welfare recipients. Alameda County CalWORKs Needs Assessment and Outcomes Study. Available: www.phi.org/pdf-library/CalWORKsPolicy.pdf . Accessed July 27, 2006.

Stapleton, D.C. (2004). *The Eligibility Definition Used in the Social Security Administration's Disability Programs Needs to be Changed*. Prepared for presentation at the Social Security Advisory Board's April 14, 2004 Discussion Forum on the Definition of Disability. Available: <http://www.ssab.gov/DisabilityForum/SSAB%20forum%20Stapleton%20presentation.pdf> (Accessed August 4, 2005).

Stapleton, D.C., and Livermore, G.A. (2003). A conceptual model and evaluation strategy for the empirical study of the adequacy of incentives in the Ticket to Work program. In *Paying for the Results in Vocational Rehabilitation: Will Provider Incentives Work for Ticket to Work?* edited by K. Rupp and S. Bell. Washington, DC: Urban Institute Press.

Stone, D. (2002). *Policy Paradox: The Art of Political Decision Making, Revised Edition*. New York: WW Norton and Co.

Stone, D. (2005). Introduction: Public policy and social construction of deservedness. In *Deserving and Entitled: Social Constructions and Public Policy*, A. Schneider and H. Ingram, Editors. Albany, NY: State University of New York Press.

Strauss, A. and Corbin, J. (1998). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*, Thousand Oaks, CA: Sage Publications, Inc.

Sturm R. (2000). Managed care risk contracts and substance abuse treatment. *Inquiry*, 2000; 37(2): 219-225.

Substance Abuse and Mental Health Services Administration (SAMHSA). (2005). *Appendix A: State estimation methodology*. <http://oas.samhsa.gov/2k3/State/appA.htm#tabA.1> (Accessed December 16, 2005).

Substance Abuse and Mental Health Services Administration (SAMHSA). (2004a). *Results from the 2002 National Survey on Drug Use and Health: National Findings*. <http://www.samhsa.gov/oas/2k4/ACOA/ACOA.cfm> (March 17, 2004).

Substance Abuse and Mental Health Services Administration (SAMHSA). (2004b). *The National Survey on Drug Use and Health (NSDUH): Sample design*. <http://www.samhsa.gov/oas/2k3/NSDUH/nsduh.htm> (March 30, 2004).

Substance Abuse and Mental Health Services Administration (SAMHSA). (2004c). *Appendix C: Measurement of dependence, abuse, treatment, and treatment need*. Available: <http://oas.samhsa.gov/Dependence/appendixc.htm> (June 21, 2004).

Substance Abuse and Mental Health Services Administration (SAMHSA). (2004d). *Detailed tables*. Available: <http://oas.samhsa.gov/WebOnly.htm#NHSDAtabs> (June 21, 2004).

Substance Abuse and Mental Health Services Administration (SAMHSA). (2004e). *Health insurance: Provision of mental health and substance abuse services*. Available: <http://www.mentalhealth.samhsa.gov/publication/allpub/insurance/default.asp> (October 25, 2004).

Substance Abuse and Mental Health Services Administration (SAMHSA). (2004f). *2005 budget*. Available: <http://www.samhsa.gov/budget/B2005/spending/cj-01.aspx> (November 1, 2004).

Substance Abuse and Mental Health Services Administration (SAMHSA). (1998). *Contracting for managed substance abuse and mental health services: A guide for public purchasers*. 1998. <http://search.samhsa.gov/cgi-bin/>. Treatment Improvement Protocol #22.

Substance Abuse and Mental Health Services Administration (SAMHSA). (2004a). *Results from the 2002 National Survey on Drug Use and Health: National Findings*. <http://www.samhsa.gov/oas/2k4/ACOA/ACOA.cfm> (March 17, 2004).

Substance Abuse and Mental Health Services Administration (SAMHSA). (2004b). *The National Survey on Drug Use and Health (NSDUH): Sample design*. <http://www.samhsa.gov/oas/2k3/NSDUH/nsduh.htm> (March 30, 2004).

Substance Abuse and Mental Health Services Administration (SAMHSA). (2004c). *Appendix C: Measurement of dependence, abuse, treatment, and treatment need*. Available: <http://oas.samhsa.gov/Dependence/appendixc.htm> (June 21, 2004).

Substance Abuse and Mental Health Services Administration (SAMHSA). (2004d). *Detailed tables*. Available: <http://oas.samhsa.gov/WebOnly.htm#NHSDAtabs> (June 21, 2004).

Substance Abuse and Mental Health Services Administration (SAMHSA). (2004e). *Health insurance: Provision of mental health and substance abuse services*. Available: <http://www.mentalhealth.samhsa.gov/publication/allpub/insurance/default.asp> (October 25, 2004).

Substance Abuse and Mental Health Services Administration (SAMHSA). (2004f). *2005 budget*. Available: <http://www.samhsa.gov/budget/B2005/spending/cj-01.aspx> (November 1, 2004).

Substance Abuse and Mental Health Services Administration. (2005)/ Detailed tables. 2004; Available from: URL: <http://oas.samhsa.gov/WebOnly.htm#NHSDAtabs.2004> .

Szymendera, S. and Möller, H. (2004). Public disability in Sweden. In *Learning from others: Temporary and partial disability programs in nine countries*. Honeycutt, T. and Mitra, S., Editors. New Brunswick, NJ: Program for Disability Research. pp 213-221.

Szymendera, S. and Swartz, L. (2004). The republic of South Africa. In *Learning from others: Temporary and partial disability programs in nine countries*. Honeycutt, T. and Mitra, S., Editors. New Brunswick, NJ: Program for Disability Research. pp 213-221.

Teplin, L.A., Abram, K.M., and McClelland, G.M. (1996). Prevalence of psychiatric disorders among incarcerated women. I. Pretrial jail detainees. *Archives of General Psychiatry*, Volume 53, No. 6, June 1996.

The Kaiser Commission on Medicaid and the Uninsured (2004). *Medicaid benefits, 2004*. Available: <http://www.kff.org/medicaidbenefits/rehabilitation.cfm> (October 15, 2004).

The National Center on Addiction and Substance Abuse at Columbia University (NCASA). (2001). *Shoveling up: The impact of substance abuse on state budgets*. New York City: NCASA.

The Thompson Corporation. (2004). *Substance abuse and dependence*. <http://www.ehendrick.org/healthy/001314.htm> (April 28, 2004).

Thornton, C., and Decker, P. (1990). *The Transitional Employment Training Demonstration: Analysis of program impacts: Executive summary*. Princeton, NJ: Mathematica Policy Research, Inc.

Thornton, C., Livermore, G., Stapleton, D., Kregel, J., Silva, T., O'Day, B., Fraker, T., Revell, Jr., G., Schroeder, H., and Edwards, M. (2004). Evaluation of the Ticket to Work Program. Washington, DC: Mathematica Policy Research, Inc.

Thornton, C., Livermore, G., Stapleton, D., Kregel, J., Silva, T., O'Day, B., Fraker, T., Revell, W.G., Jr., Schroeder, H., and Edwards, M. (2004). *Evaluation of the Ticket to Work Program*. Washington, DC: Mathematica Policy Research, Inc., February 2004.

Thornton, C., Miller, S., Dunstan, P. and Schore, J. (1988). *The Transitional Employment Training Demonstration: Analysis of Program Operations*. Princeton, NJ: Mathematica Policy Research, Inc., April 1988.

Turner, CF, Ku, L., Rogers, SM, Lindberg, LD, Pleck, JH, Sonenstein, FL. Adolescent sexual behaviour, drug use, and violence: Increased reporting with computer survey technology. *Science*, 1998; 280: 867-873.

Turner, CF, Lessler, JT, Gfroerer, JC. (1992). Future directions for research and practice. In *Survey Measurement of Drug Use: Methodological Studies*. Rockville, MD: National Institute on Drug Abuse.

United Nations Office on Drugs and Crime. (2006). World Drug Report, 2006, Volume 2, Statistics. Available: http://www.unodc.org/pdf/WDR_2006/wdr2006_chap_6_consumption.pdf. (Accessed August 23, 2006).

U.S. Department of Health and Human Services (1999). *Mental health: A report of the surgeon general*. Rockville, MD: Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, National Institute of Health, National Institute of Mental Health.

U.S. Dept. of Health and Human Services, Substance Abuse and Mental Health Services Administration, Office of Applied Studies. NATIONAL SURVEY ON DRUG USE AND HEALTH, 2002 [Computer file]. 2nd ICPSR version. Research Triangle Park, NC: Research Triangle Institute [producer], 2004. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2004.

U.S. General Accounting Office (1997). *Social Security: Disability Programs Lag in Promoting Return to Work, Letter Report to Congressional Committee*. Washington, DC: U.S. General Accounting Office.

Uitermark, J. (2004). The origins and future of the Dutch approach towards drugs. *Journal of Drug Issues*. Summer 2004. 511-532.

United States Department of Health and Human Services (1999). *Mental health: A report of the surgeon general*. Rockville, MD: Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, National Institute of Health, National Institute of Mental Health.

United States House of Representatives. (2004). Green Book, The Supplemental Security Income Program. Washington, DC: Author.

United States House of Representatives. (2004). Green Book, The Supplemental Security Income Program. Washington, DC: Author.

US Department of Health and Human Services. (1997). *Alcohol and Health: Tenth Special Report to the US Congress*. Washington, DC: Author.

US Department of Justice. (2006). *Sourcebook of Criminal Justice Statistics, 2003*. Available: www.albany.edu/sourcebook/ (Accessed 7/27/06).

Vaughn, T., Sarrazin, M., Saleh, S.S., Huber, D.L., and Hall, J.A. (2002). Participation and retention in drug abuse treatment services research. *Journal of Substance Abuse Treatment*, 23(4), December 2002, 387-397.

Virginia Commonwealth University (2005). *State Partnership System Change Initiative (SPI) Project Office 2005 Evaluation Report*. Richmond, VA: VCU.

Von Strauss, E., Agüero-Torres, H., Kareholt, H., Winblad, B., & Fratiglioni, L. (2003). Women are more disabled in basic activities than men only in very advanced ages: A study on disability, morbidity, and mortality from the Kungsholmen project. *Journal of Clinical Epidemiology*, 56, 669-677.

Wallace, J.M. and Bachman, J.G. (1991). Explaining racial/ethnic differences in adolescent drug use: The impact of background and lifestyle. *Social Problems*, 38, 333-357.

Watkins, K.E. and Podus, D. (2000). The impact of terminating disability benefits for substance abusers on substance use and treatment participation. *Psychiatric Services*, 51(11), 1371-1381.

Watkins, K., Podus, D., and Lombardi, E. (2001). The health and mental health of disabled substance abusers. *The Journal of Behavioral Health Services and Research*, 28:2, May 2001, 205-211.

Weiner, J. "Medicaid and Work Incentives for People with Disabilities: Background and Issues." Washington, DC: Urban Institute, June 2005.

Welfare Information Network. (2004). Welfare information network. Available: <http://www.financeprojectinfo.org/win/hard-mental.asp> (April 28, 2004).

Welfare Information Network. (2004). Welfare information network. Available: <http://www.financeprojectinfo.org/win/hard-mental.asp> (April 28, 2004).

Westphal, S. (1999). Welfare payday linked to rise in deaths in Los Angeles. Los Angeles Times, California.

Wilensky, HL, Luebbert, GM, Hahn, SR, Jamieson, AM. (1985). *Comparative social policy: Theories, methods, findings*. Berkeley, CA: Institute of International Studies.

Wilson, MT, Atanda, R., Atkinson, DD, Mulvey, K. (2005). Outcomes from the targeted capacity expansion substance abuse treatment program. *Journal of Substance Abuse Treatment*, 28, 341-348.

Wilson, W.J. (1996). *When work disappears*. New York: Knopf.

Witkiewitz, K. and Marlatt, G.A. (2004). Relapse prevention for alcohol and drug problems: That was Zen, this is Tao. *American Psychologist*, 59(4): 224-235 (1-31 on Internet printout).

Wittenburg, D. and P. Loprest. (2003). Ability or inability to work: Challenges in moving towards a more work-focused disability definition for Social Security Administration (SSA) disability programs." Washington, DC: The Urban Institute.

World Health Organization. (2006). Global status report on alcohol, 2004. Country profiles. Available: http://www.who.info/substance_abuse/publications/globalstatusreportalcoholprofiles/en/index.html . (Accessed August 23, 2006).

Wu, L., Ringwalt, C.L., and Williams, C.E. (2003). Use of substance abuse treatment services by persons with mental health and substance use problems. *Psychiatric Services*, 54:363-369, March 2003.

Yacoubian, G.S. (2004). The sins of ADAM: Toward a new national criminal justice drug use surveillance system. *International Journal of Drug Testing*, Volume 3, 1-15.

Yin, R. (2003). *Case Study Research: Design and Methods*, Thousand Oaks, CA: Sage Publications.

Zedlewski, S., Nelson, S., Edin, K., Koball, H., Pompee, H., Roberts, T. (2003). Families coping without earnings or government cash assistance. Occasional Paper No. 64, *Assessing the New Federalism*. Washington, DC: Urban Institute.

Zhang, Z. and Snizek, W. (2003). Occupation, job characteristics, and the use of alcohol and other drugs. *Social behavior and personality*, 31(4), 395-412.

Curriculum Vita

Debra L. Brucker

Education

- 2002 – present Rutgers, the State University of New Jersey
Bloustein School of Planning and Public Policy
Doctoral program
- 1993-1995 University of Delaware
Graduate College of Urban Affairs and Public Policy
Master of Public Administration
Social policy analysis
- 1987-1991 University of Delaware
College of Arts and Sciences
Bachelor of Arts, Cum laude
Psychology and criminal justice

Positions

- Supervisor, Data and Research
State of Maine, Department of Health and Human Services, Office of Substance Abuse
Augusta, ME
2006-present
- Summer Research Associate
Mathematica Policy Research, Inc., Health Research Division
Princeton, NJ
Summer 2005
- Associate Director
Rutgers University, Program for Disability Research
New Brunswick, NJ
2002-2005
- Research Associate
Rutgers University, Program for Disability Research
New Brunswick, NJ
2001-2002
- Welfare Planning and Evaluation Chief
State of Vermont, Dept of Prevention, Assistance, Transition and Health Access
Waterbury, VT
2000-2001

Senior Research and Statistics Analyst
State of Vermont, Department of Health, Division of Alcohol and Drug Abuse Programs
Burlington, VT
1998-2000

Project Researcher
Research Triangle Institute
Research Triangle Park, NC
1996-1998

Graduate Research Assistant
University of Delaware, College of Urban Affairs and Public Policy
Newark, DE
1993-1995

Legislative Fellow
Delaware General Assembly
Dover, DE
1994

Senior Family Services Specialist
State of Delaware, Division of Child Protective Services
Wilmington, DE
1991-1993

Psychiatric Technician
Ramapo Ridge Psychiatric Hospital
Wyckoff, NJ
1989-1991

Publications

Gervey, R., Ratemo, M., Halper, A., Berkowitz, M., and Brucker, D. (Forthcoming). Ticket-to-Work Project: Evaluation of an assertive outreach campaign to increase ticket assignment and use of the One-Stop system by SSA beneficiaries in an urban county in New Jersey. *Journal of Vocational Rehabilitation*.

Brucker, D. (Forthcoming). Substance abuse, disabilities, and Social Security. *Journal of Disability Policy Studies*.

Brucker, D. (2006). Re-entry to recovery: A promising return-to-work approach for certain offenders with mental illness. *Criminal Justice Policy Review*, 17(3): 302-313.

Honeycutt, T. and Brucker, D. (2006). Developing a screening tool to predict disability program participation. *Journal of Rehabilitation*, April-June 2006, 72(2): 21-31.

Brucker, D. (2006). Review of *Health and Inequality: Geographical Perspectives* by Curtis, S., Sage, 2004 and *Dying for Growth: Global Inequality and the Health of the Poor* by Kim, JY, Irwin, A., Milken, J. and Gershman, J., Editors, Common Cause Press, 2000 in *Journal of American Planning Association*. Vol. 72, Issue 1, Winter 2006, 121-122.

Brucker, D. (2006). Review of *How Management Matters: Street-level Bureaucrats and Welfare Reform* by Riccucci, N., Georgetown University Press, 2005ed, in *American Review of Public Administration*. Vol. 36, No. 1, March 2006, 117-119.

Brucker, D. (2004). Informing the development of employment programs for persons with disabilities: A case study analysis of the definitions, uses and implications of the idea of suitable employment. *Journal of Vocational Rehabilitation*, 21(3): 137-147.

Mitra, S. & Brucker, D. (2004). The Early Intervention project: An innovative initiative to return disability insurance applicants to work. *The Journal of Disability Policy Studies*, Winter 2004, 15(3): 159-167.