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**State Partnership  
Initiative: Selection of  
Comparison Groups for  
the Evaluation and  
Selected Impact Estimates**

*Final Report*

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## **I. THE STATE PARTNERSHIP INITIATIVE AND ITS EVALUATION**

This chapter provides background about the State Partnership Initiative (SPI) and the national evaluation of its effects on employment and earnings. It also describes the organization and main findings of this report.

### **A. THE STATE PARTNERSHIP INITIATIVE**

SPI is one of the first large-scale attempts by the Social Security Administration (SSA) to promote employment to beneficiaries who receive Supplemental Security Income (SSI) or Social Security Disability Insurance (SSDI) benefits. The goal of SPI is to boost the historically low employment rates and earnings of beneficiaries with disabilities, reflecting a consensus that no individual with a disability should be denied the right to participate fully in society, including participation in work, because of external barriers that can reasonably be removed. Although the monthly employment rate of SSI beneficiaries with disabilities rose slightly from 3.4 percent in 1976 to 6.5 percent in 1989, the rate has fluctuated between 5.6 and 6.7 percent since then (Pickett 2003). In addition, four-fifths of the SSI beneficiaries who do work earn less than the amount that SSA designates as substantial gainful activity (\$800 per month in 2004). Furthermore, SSI beneficiaries who have disabilities and who work have a low rate of use of SSA's current work incentive programs. For example, during September 2003, only 27 percent of working SSI beneficiaries with disabilities used the work incentives available under Section 1619, and only 4 percent used a work incentive, such as a Plan for Achieving Self-Sufficiency (PASS), to exclude some of their earnings from benefit calculations (Pickett 2003).<sup>1</sup> The employment rate and earnings of SSDI beneficiaries have been low as well.

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<sup>1</sup> The goal of these work incentives is to help beneficiaries to obtain the means to increase their employment. Under Section 1619(a), SSI beneficiaries remain eligible to receive SSI checks while employed if they still have a

To address the low rate of employment of beneficiaries with disabilities, SSA and the Rehabilitation Services Administration (RSA) took the lead in funding and directing SPI.<sup>2</sup> The U.S. Department of Labor (DOL), Employment Training Administration, and the U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, provided supplementary funding and support. The 18 state projects (12 cooperative agreements funded by SSA and 6 systems change grants funded by RSA) operated in 17 states, seeking to increase employment among people with disabilities.<sup>3</sup> The SSA-funded state projects focused on delivering direct services to Social Security disability beneficiaries receiving SSI or SSDI through at least one of the following approaches: (1) improving information about the effect of work on benefit receipt, (2) encouraging the use of available work incentives, (3) testing modifications to program rules to allow SSI beneficiaries in four state projects to earn and save more, and (4) providing better access to vocational supports. To increase their emphasis on employment outcomes, the state projects also sought to institute changes to the service systems in place for all people with disabilities, as opposed to those solely for SPI participants. For example, many SPI projects developed interagency governance structures to enable state agencies to cooperate to address barriers to employment for beneficiaries. Other state projects worked with specific state agencies, including vocational rehabilitation (VR) agencies and mental health agencies, to focus on employment of SSA

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*(continued)*

disability and meet income and asset limits. Section 1619(b) provides Medicaid coverage for beneficiaries who are working. A PASS is an SSA-approved plan that specifies an employment goal and the expenditures required to pursue that goal. Under a PASS, earned income is excluded from the benefit computation process when the income is used for a purpose specified in the plan, thus allowing the beneficiary to retain a higher benefit.

<sup>2</sup> The RSA initiative focused on activities to change the overall system that helps people with disabilities to obtain employment and live independently. Consequently, the overall SSA/RSA effort sometimes is referred to as the State Partnership and Systems Change Initiative, even though the abbreviation SPI still is used.

<sup>3</sup> Two state projects were operated in Iowa.

beneficiaries. In contrast, the RSA-funded state projects focused mainly on changing service systems, and less on providing direct services. Most state projects targeted beneficiaries with severe mental illness, although many also targeted people with other disabilities. The state projects were funded in fall 1998, and the first state began enrollment in January 1999. Most SSA-funded state projects provided services through September 2004.<sup>4</sup>

## **B. THE SPI EVALUATION**

In addition to funding state projects to provide new initiatives to increase employment of people with disabilities, the SPI demonstration also funded the SPI Project Office, which consists of Virginia Commonwealth University (VCU) and its subcontractor, Mathematica Policy Research, Inc. (MPR), to conduct an evaluation of SPI. The SPI Project Office monitored and collected data on program implementation, provided technical assistance for the state projects' evaluations, and conducted an evaluation of the demonstration.

To fully understand the effects of SPI, SSA developed the evaluation to integrate information from four distinct components:

1. ***The State Projects' Own Evaluations.*** Each SSA state project was required to use its own evaluation design and data sources to describe the project's implementation, and to assess the project's impacts. All of the projects completed final reports. Ten of the 12 projects provided final estimates of program impacts (synthesized by Peikes and Sarin [2005]).<sup>5</sup>
2. ***Core Evaluation.*** MPR conducted the core evaluation, which focused exclusively on estimating the impacts of the service interventions provided by the SSA-funded projects. (The implementation analysis documents the systems change activities.) The core evaluation was intended to compare key outcomes of participants in each project with outcomes of a comparison group that was selected to have similar demographics, previous labor market experiences, and benefit receipt as those of participants, and to live in similar areas. The core evaluation component relies

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<sup>4</sup> Illinois and Ohio stopped providing services during September 2003 and March 2004, respectively.

<sup>5</sup> Neither Illinois nor North Carolina conducted internal evaluations of program impacts.

exclusively on SSA administrative and income tax data and was designed so that the same approach and data was used to estimate the impacts of every state project. Because of lags in the availability of these data, this report contains the core evaluation's first estimates of short-term program impacts. The core evaluation includes the 11 SSA-funded state projects that targeted adult beneficiaries.<sup>6</sup>

3. ***Supplemental Evaluation.*** MPR also conducted the supplemental evaluation, which included an analysis of the characteristics of and services received by project participants (Peikes and Paxton 2003; Deke and Peikes 2003).
4. ***Implementation Analysis.*** VCU's spring 2005 report describes the projects' target populations, interventions, and systems change activities, as well as the contexts within which the projects operated. The report is based on VCU's site visits and the state projects' evaluation reports.

## C. REPORT OVERVIEW

This report describes how we selected nonexperimental comparison groups for each of the 11 SSA-funded state projects that targeted adult beneficiaries, the validity of the comparison groups, and short-term project effects on employment and earnings in 3 state projects. We focus on employment and earnings because we expect the projects to reduce benefit receipt, and to increase participants' income by increasing their employment rate and earnings.<sup>7</sup> Chapter II describes (1) the types of barriers to employment that Social Security beneficiaries face, (2) the selected services that the projects fielded to address the employment barriers, (3) the availability to nonparticipants of comparable services, and (4) the limited size of the effects found when

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<sup>6</sup> Illinois, the 12th SSA-funded state project, targeted high school students. We would expect that a successful project for that age group would promote additional education and employment aspirations, but not necessarily short-term employment outcomes. Because administrative data do not measure educational attainment and employment aspirations, the evaluation excludes Illinois.

<sup>7</sup> Average earnings were reported for the entire research group. We report that outcome, rather than earnings among those who were employed, because some employment programs increase the proportion of more marginal workers who are employed. In those cases, average earnings among people who work drop for the participant group relative to the comparison group. Such a finding might incorrectly suggest that the intervention reduced earnings, despite an increase in the total earnings for the group.

Because of limited resources, the national evaluation could measure effects on some important outcomes, including use of other forms of public assistance, attitudes about work, job-seeking behaviors, quality of life, and satisfaction.



more-intensive service packages were provided under previous demonstrations. Given these factors, we expected the state projects to have generated small to moderate impacts on employment and benefit receipt.

Chapters III and IV describe the selection of comparison groups and assessment of their validity. SSA gave the state projects the option of using random assignment when they designed their demonstration projects. Because eight state projects did not choose to use random assignment, the national evaluation faced the challenge of selecting a nonexperimental approach to estimate the impact of SPI. Agodini et al. (2002a, 2002b) proposed using the most promising nonexperimental method available to select the comparison groups, and to then estimate impacts by comparing the outcomes of the treatment and comparison groups. Chapter III discusses how we first selected comparison areas that have employment and service environments comparable to those of the demonstration areas. It then describes how, guided by the design described in Agodini et al., we used a matching methodology called “propensity score matching” (PSM) to select comparison beneficiaries from within the comparison areas who are similar to the participants. The matching process generated comparison groups that are similar to participants in terms of demographic characteristics, previous benefit receipt, and work history. Chapter IV shows that, despite the similarities on observable preenrollment characteristics, the comparison groups selected through PSM incorrectly estimate impacts on employment and earnings when compared with the actual impact estimates from random assignment. As a result, the evaluation cannot reliably estimate the effect of SPI enrollment on participants’ labor force outcomes in the eight state projects that did not use random assignment.

Finally, Chapter V presents estimates of the short-term impacts over the year after the year of randomization on employment and earnings for the three state projects that used random assignment (New Hampshire, New York, and Oklahoma).

By the end of the follow-up period we observed—the end of the year after the year of randomization—the average time elapsed since the beneficiary began participating varied across the three state projects. Participants in Oklahoma had been enrolled the shortest period (217 days) because there was a lag between when Oklahoma randomized beneficiaries and when the participants were invited and chose to participate. Participants in New York’s benefits counseling only and benefits counseling with employment services treatment groups had been enrolled for an average of 407 and 399 days, respectively. Because there was no lag between the time they were randomized and when they began participating, New Hampshire’s treatment group had the longest enrollment time—549 days at the end of the observed follow-up period.

We find mixed effects on employment. The impact is calculated as the difference in the change over time for the treatment group, minus the difference in the change over time for the control group. The New York and Oklahoma projects increased the proportion of beneficiaries who worked during the year after the randomization year relative to the year preceding the randomization year by 8.8 to 17.0 percentage points relative to the change for the control groups (Table I.1). Both projects targeted SSI beneficiaries with severe mental illness. New York randomly assigned people to one of two interventions (or to the control group). Both interventions tested waivers to SSI regulations that allowed beneficiaries to retain more of their earnings and benefits counseling. Benefits counseling analyzes the effects of employment on a person’s public assistance benefits and health care coverage. It also is intended to help beneficiaries to understand, and to take advantage of, available work incentives and programs. One of the treatment arms also received employment services. Oklahoma offered benefits counseling, vocational services, and consumer control of services.

TABLE I.1

IMPACTS ON EMPLOYMENT AND EARNINGS DURING THE YEAR AFTER THE RANDOMIZATION YEAR  
RELATIVE TO THE YEAR BEFORE RANDOMIZATION, PER PARTICIPANT

	Number Randomized Through 2001		Employment (Percentage Points)		p-Value	Earnings		p-Value
	Treatment Group	Control Group						
New York—SSI								
Benefits counseling only	937	914	8.8		0.19	–\$1,080	*	0.06
Benefits counseling and employment services	932	914	17.0	***	0.01	–\$455		0.53
New Hampshire								
SSI	22	27	–29.5	*	0.07	–\$709		0.51
SSDI only	35	29	–29.6	**	0.02	–\$1,633	**	0.05
Oklahoma								
SSI	1,440	256	17.0		0.15	\$451		0.45

Source: Social Security Administration administrative data and Summary Earnings Record data.

Note: Impacts are regression-adjusted.

SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

\*Impact significantly different from zero at the 0.10 level.

\*\*Impact significantly different from zero at the 0.05 level.

\*\*\*Impact significantly different from zero at the 0.01 level.

In contrast to those two state projects, in which the interventions increased employment relative to employment among the control groups, the proportion of participants who were employed decreased by 30 percentage points in the New Hampshire project relative to the proportion of control group members who were employed. New Hampshire provided benefits counseling, case management, and consumer direction of services to beneficiaries who had any type of disability. In New Hampshire, the treatment group's employment declined over time, whereas the control group's actually increased.

Notably, the positive impacts in employment for participants in New York's intervention arm who did not receive employment services and in Oklahoma occurred despite overall decreases in employment over time among the respective treatment groups. In other words, the

two projects had positive impacts on employment because employment declined for both the treatment and control groups, but the decline in employment for the control groups was even larger than the decline for the treatment groups. This finding underscores the important challenge of maintaining employment for beneficiaries with mental illness.

The results for New York show that the combination of employment services and benefits counseling is a more effective way of increasing employment rates than is benefits counseling alone. Although benefits counseling alone resulted in an 8.8 percentage point impact, adding employment services increased the size of the impact to 17 percentage points. The addition of employment services actually increased the treatment group's employment slightly, rather than merely dampening its decline relative to that of the control group.

Even with the relative increases in employment in New York and Oklahoma, the interventions had disappointing impacts on short-term earnings. No statistically detectable effects on participants' earnings were observed in Oklahoma or in New York's intervention arm that received SSI waivers, benefits counseling, and employment services. Among New York participants in the intervention arm offering SSI waivers and benefits counseling (without employment services), a statistically significant *reduction* in annual earnings of participants of \$1,080 was observed. In other words, the increase in the treatment group's earnings was \$1,080 less than that of the control group's during the same period. In New Hampshire, the treatment group's decrease in employment relative to that of the control group was accompanied by a relative decline in earnings of \$1,633.

These estimates indicate that over the short-term, benefits counseling and employment services may sometimes increase employment relative to what would have happened without the services, but that they also may decrease employment. Moreover, the interventions paradoxically reduced or had no effect on the short-term earnings of participants. It is possible

that the short-term effects will change when a longer follow-up period is observed. Earnings might increase over the longer term if participants make short-term investments in their human capital through education or training programs, or if attitudes toward work take longer to change. Indeed, Thornton et al. (2005) found that cases are successfully closed in VR after an average of 26 months.



## II. SPI'S GOALS, TARGET POPULATIONS, AND SERVICES

This chapter describes the goals of the State Partnership Initiative (SPI) demonstration. It then describes the populations that the projects served, and the services delivered.

### A. SPI SERVED BENEFICIARIES WITH DISABILITIES WHO FACE SUBSTANTIAL BARRIERS TO EMPLOYMENT

SPI targeted beneficiaries receiving Supplemental Security Income (SSI) or Social Security Disability Insurance (SSDI) and whose barriers to employment were significantly greater than the barriers faced by the general population. The low employment rates among SSI and SSDI beneficiaries with disabilities reflect seven broad barriers to employment:

1. ***No Understanding or Misunderstanding About How Work Affects Benefits.*** After experiencing an often-lengthy application process in which applicants for SSDI and SSI must prove that they cannot engage in substantial work, many beneficiaries incorrectly believe that they are not allowed to work. Others know that they can engage in some work, but they do not know how work will affect their benefits, nor do they know 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 (Gerry 2005; Kregel and Head 2004; Miller and O'Mara 2003; Brooke 2002). Benefits planning and assistance programs try to address this barrier by providing in-depth analysis, planning, and assistance related to the effect of employment on a person's cash benefits, health care coverage, and eligibility for other government support programs. The service is intended to help beneficiaries to understand, and to take advantage of, work incentives and options that the current programs offer.
2. ***Policies that Do Not Make Work Pay.*** Various factors, including the costs and benefits of working versus not working, shape a person's decision to work. An unemployment trap arises when the difference in income from work is too small to provide an incentive to work. Policies that improve the job prospects of beneficiaries or that reduce the amount by which public benefits are decreased when beneficiaries work may address this barrier (Gerry 2005; Knox et al. 2000; Fraker and Moffitt 1988; Moffitt and Rangarajan 1991).
3. ***Human Capital and Personal Barriers.*** People receiving SSI may not have the marketable skills required to move into employment. For example, beneficiaries may lack formal training and may need help learning specific vocational skills and general workplace behaviors. Beneficiaries also may not have information on how

to find and keep jobs. In addition, in many cases, barriers related to their disabilities may prevent many people with disabilities from working. Making accommodations in the workplace, such as providing appropriate physical space, flexible time, adaptive technology, and transportation assistance to commute to and from work, can be helpful. Case management and referral programs also can help beneficiaries to identify the assistance needed and the organizations that can provide it (Mueser et al. 2003; Rupp and Bell 2003; Bond et al. 2001; Decker and Thornton 1995).

4. ***Access to Health Insurance.*** Eligibility for SSI typically results in eligibility for Medicaid. Beneficiaries may choose not to work because they fear losing their public health insurance coverage. Benefits counseling can inform beneficiaries about SSA provisions that allow them to keep health insurance after they begin working. In addition, Medicaid buy-in programs address the health insurance barrier by amending state Medicaid programs to enable people with disabilities to purchase Medicaid coverage for basic medical care and for special services, such as personal assistance, that can help them to engage in productive work. The Medicaid buy-in programs vary by state and may require beneficiaries to pay small amounts for this coverage, often on a sliding scale based on income. The programs target people who, because of earnings or assets, would not qualify for Medicaid under other provisions (Ireys et al. 2003).
5. ***Service Systems Barriers.*** Many beneficiaries struggle to obtain services and supports from fragmented, difficult-to-understand sources (Gerry 2005). One way to induce service systems to increase their focus on clients is to place several disability-related services in U.S. Department of Labor (DOL) One-Stop Centers. SSA, in cooperation with DOL, has created new staff positions—disability program navigators; these staff work in One-Stop Centers to make it easier for people with disabilities to find employment. Another way to promote service coordination and integration is by promoting better interaction among the state agencies that share responsibility for encouraging people with disabilities to obtain employment.
6. ***Employment Market Barriers.*** Inaccurate perceptions about the abilities and employment potential of people with disabilities can make it difficult for these individuals to obtain jobs (Gerry 2005; DeLeire 2003; Acemoglu and Angrist 2001). Discrimination against older workers and racial/ethnic minorities with disabilities can pose additional barriers to beneficiaries who are attempting to find work.
7. ***Policies that Prohibit Asset Accumulation.*** SSI rules limit assets to \$2,000 for an individual, and to \$3,000 for a couple. (The home in which the beneficiary lives and one car are exempted.) These rules can be a strong disincentive to saving and can prevent workers from accumulating the assets that would help them to weather a spell of unemployment, or to pursue self-employment.

## **B. SPI PARTICIPANTS FACE MANY BARRIERS TO EMPLOYMENT**

All of the people who chose to participate in SPI have severe disabilities that limit their ability to work, and many also have limited education and employment experience. Forty



percent of the 6,265 people who enrolled through March 2003 and whose intake data were reported by the 11 state projects included in the core evaluation reported at intake that they received only SSDI benefits, 36 percent reported receiving only SSI, and 23 percent received both SSDI and SSI; 1 percent were applicants to SSI or SSDI. Fifty-six percent reported having a mental illness. The proportion of participants with mental illness ranged from about one-fifth in Wisconsin to nearly all participants in California, New York, Ohio, and Oklahoma. Twenty percent had not completed high school and another one-third had only a high school education (Table II.1). One-third of participants reported not having worked since the onset of their disability, and seven percent, overall, had never worked (Table II.2).

Although employment rates were low, the SPI projects attracted participants who were much more likely to be employed than was the *overall* disability beneficiary population. The proportion of participants who were employed at intake varied from none in Oklahoma (which targeted unemployed people exclusively) to about half in California, Iowa, Minnesota, and Vermont. Across the projects, 37 percent of participants reported that they were working at the time they enrolled, compared with the national average of 6 percent of SSI beneficiaries who work in a given month (Figure II.1). Because of the stark difference between participants and the overall beneficiary population, recent employment therefore appeared to be a promising characteristic to use to select comparison groups.

Participants also took part in many benefit programs in addition to SSI and SSDI, and that participation had the potential to create additional barriers to employment. In general, people who participate in multiple programs often have difficulty distinguishing among the complex work incentives associated with receipt of different forms of public assistance, and they may find it hard to understand the full financial implications of being employed. Public assistance programs can provide invaluable financial supports and access to affordable housing, food, and

TABLE II.1  
CHARACTERISTICS OF PARTICIPANTS ENROLLED THROUGH MARCH 2003  
(Percentages Unless Otherwise Noted)

	Number Enrolled	Report a Diagnosis of Mental Illness	Average Age at Intake (Years)	Proportion Male	Educational Attainment at Intake				
					Less than High School	High School or GED	Postsecondary	Bachelor's or Higher	Missing
California	270	98.5	40.6	50.7	17.0	24.8	47.0	11.0	0.0
Iowa	672	43.6	39.9	50.7	13.2	36.6	39.6	10.6	0.0
Minnesota	437	46.5	39.1	42.6	11.7	26.5	43.2	18.5	0.0
New Hampshire <sup>a</sup>	181	66.9	42.3	49.7	17.7	23.8	44.2	14.4	0.0
New Mexico	841	38.4	39.4	53.6	19.9	29.7	37.2	12.5	0.7
New York <sup>b</sup>	858	99.7	41.6	50.9	20.3	23.4	39.7	16.6	0.0
North Carolina	369	38.8	39.9	46.6	24.1	27.9	32.5	15.4	0.0
Ohio	682	99.6	41.0	50.1	16.4	40.3	32.8	10.3	0.1
Oklahoma <sup>b</sup>	183	98.9	39.8	41.0	25.7	34.4	27.9	4.9	7.1
Vermont	906	36.5	41.0	50.6	19.3	35.9	25.7	13.8	5.3
Wisconsin	866	22.4	38.0	59.5	12.9	32.7	32.1	15.6	6.7
<b>Overall</b>	<b>6,506</b>	<b>55.5</b>	<b>39.3</b>	<b>51.4</b>	<b>19.7</b>	<b>31.0</b>	<b>34.3</b>	<b>13.1</b>	<b>2.0</b>

Source: Core data collected by the state projects and analyzed in Peikes and Paxton (2003). Data were reported by participants at the time of enrollment.

<sup>a</sup>The sample contains both treatment and control group members.

<sup>b</sup>The sample contains the subgroup of the treatment group that participated.

GED = General Educational Development.

TABLE II.2

**EMPLOYMENT AND BENEFIT STATUS OF PARTICIPANTS ENROLLED THROUGH MARCH 2003**  
(Percentages Unless Otherwise Noted)

	Number Enrolled	Employment Status at Intake			Worked Since Onset of Disability	Type of Social Security Benefit at Intake		
		Employed	If Employed, Mean Monthly Earnings (Dollars)	Never Worked		SSDI Only	SSI Only	Concurrent Applicant
California	270	48.9	479	3.0	78.5	30.7	42.2	26.7 0.4
Iowa	672	50.3	482	1.6	78.7	53.9	21.3	24.9 0.0
Minnesota	437	52.9	545	1.4	84.2	52.2	21.3	26.5 0.0
New Hampshire <sup>a</sup>	181	25.4	425	1.7	74.0	67.4	17.7	14.9 0.0
New Mexico	841	37.7	542	6.8	66.2	45.7	36.9	17.2 0.2
New York <sup>b</sup>	858	19.5	n.a.	11.9	57.9	0.0	67.4	32.6 0.0
North Carolina	369	37.9	625	3.8	66.4	58.0	21.4	19.2 1.4
Ohio	682	33.7	483	3.1	71.4	41.1	28.9	21.1 8.9
Oklahoma <sup>b</sup>	183	0.0	—	4.4	91.3	27.3	59.6	13.1 0.0
Vermont	906	42.8	566	3.9	66.8	53.3	22.6	24.1 0.0
Wisconsin	866	34.9	481	10.6	59.6	42.4	35.2	22.4 0.0
<b>Overall</b>	<b>6,506</b>	<b>36.6</b>	<b>512</b>	<b>6.6</b>	<b>68.9</b>	<b>40.2</b>	<b>36.0</b>	<b>22.5 1.3</b>

Source: Core data collected by the state projects and analyzed in Peikes and Paxton (2003). Data were reported by participants at the time of enrollment.

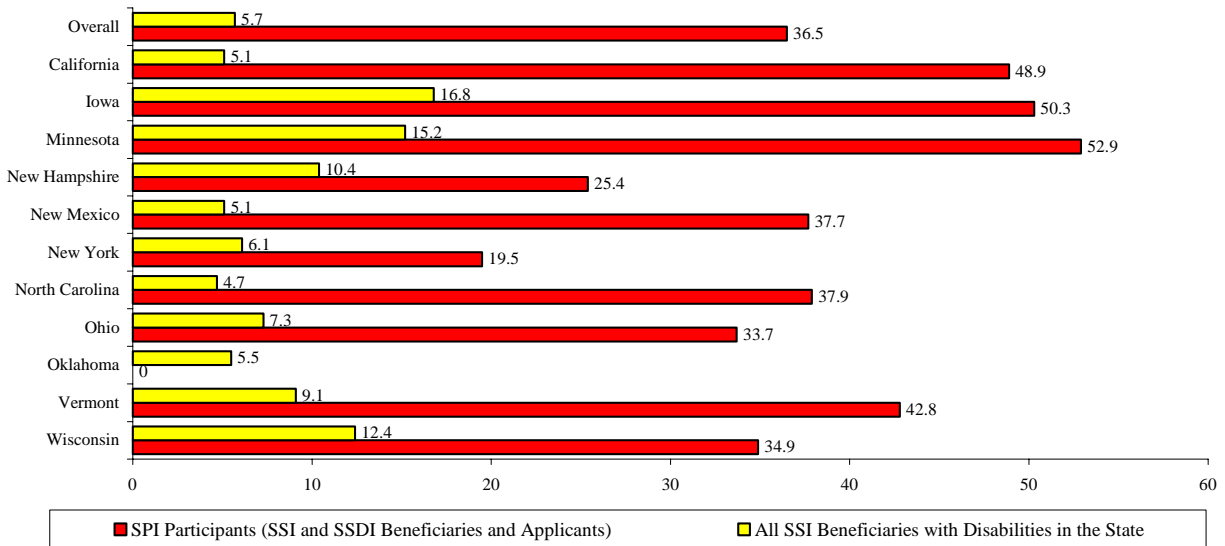
<sup>a</sup>The sample contains both treatment and control group members.

<sup>b</sup>The sample contains the subgroup of the treatment group that participated.

n.a. = not available; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

FIGURE II.1

EMPLOYMENT RATE OF STATE PROJECT PARTICIPANTS (AT INTAKE) AND ALL SSI BENEFICIARIES  
IN THE STATE (IN SEPTEMBER 2003)



Source: The employment rate of SPI participants is taken from core data collected by the state projects; state and national information is taken from Pickett (2003).

Note: Overall proportion employed is for the United States as a whole and its territories.

SPI = State Partnership Initiative; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

health insurance, but program rules as well as the participants' perceptions of those rules also can produce disincentives to employment (Peikes and Paxton 2003). For example, in some cases, participants may lose a dollar or more of total benefits across the multiple programs as a result of earning an additional dollar.

### C. THE STATE PROJECT INTERVENTIONS TARGETED SELECTED BARRIERS TO EMPLOYMENT

Each of the 11 SPI projects in the core impact evaluation designed its own intervention, with technical assistance from Virginia Commonwealth University (VCU). Each state focused on selected barriers to employment, and none targeted every barrier (Table II.3). Both the state

TABLE II.3

## SERVICES PROVIDED BY THE STATE PROJECTS TO REMOVE EMPLOYMENT BARRIERS

Direct Interventions										System Change						
Increase Understanding of How Work Affects Benefits			Make Work Pay		Improve Human Capital							Increase Access to Health Insurance		Build More Person-Centered Service Systems		Reduce Employer Barriers
	Benefits/Work Incentive Counseling	SSA Work Incentives	Case Management	Placement Assistance	Job Training	Services/Supports from Local MH/DD	Job Accommodations	Job Service Voucher	Psychosocial Rehabilitation	Peer Mentoring	Situational Assessment	Medicaid Waiver/Buy-In	One-Stop Center			
California	X	X	X	X		X			X			X	X			
Iowa (SSA)	X											X	X		X	
Minnesota	X											X				
New Hampshire	X		X									X				
New Mexico	X		X	X								X	X			
New York	X	X	X	X					X	X	X	X	X	X	X	
North Carolina	X												X			
Ohio	X												X		X	
Oklahoma	X		X	X	X			X	X		X		X	X		
Vermont	X	X										X				
Wisconsin	X	X	X	X	X	X	X		X	X						

Source: Based on the services that the state projects reported as project funded in the service data they collected through March 31, 2002. We also relied on information collected by Virginia Commonwealth University in site visits to document the use of One-Stop Centers and employer outreach. Information on the use of the Medicaid Buy-In program is taken from the service data, state project reports, Ireys et al. (2003), and Deke and Peikes (2003).

Note: This table excludes Supported Employment, Transitional Employment Program, Transportation Assistance, and School to Work Transition Services. It also excludes services that projects reported delivering to fewer than 10 participants.

DD = developmental disability; MH = mental health; SSA = Social Security Administration.

component and core evaluation component of the evaluation focus on measuring the effects of services provided to participants.

The state projects focused predominantly on *Social Security benefits/work incentives counseling*, which all 11 projects offered as the centerpiece of their direct interventions, and which were the sole service provided to participants in three projects and to one of New York's two treatment groups.<sup>8</sup> Although the models varied across the projects, key components included information and referral, problem solving, benefits assistance, benefits planning, and long-term benefits management. Many state projects also encouraged beneficiaries to take advantage of Social Security work incentives, such as the Plan for Achieving Self-Sufficiency. Overall, participants in the state projects received 10 to 40 hours of benefits counseling, with an average of between 10 and 20 hours in 8 of the 10 states that collected data on services (Table II.4) (Deke and Peikes 2003).

The state projects generally placed less emphasis on addressing other barriers to employment. Four states tested waivers to SSI regulations designed to make employment more attractive to beneficiaries. The *SSI waivers* changed current SSI regulations that might have discouraged beneficiaries from seeking work. The changes included trial provisions that permitted working beneficiaries to keep more of their benefits, allowed the beneficiaries to accumulate more savings than those specified under the current asset limits, and protected them from having a continuing disability review triggered solely because of their participation in SPI. (These changes are discussed in detail in Appendix A.)

Six projects sought to help beneficiaries to improve their skills as a way of increasing the beneficiaries' labor market competitiveness. Three of the six delivered an average of more than

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<sup>8</sup> The New York project offered two distinct service packages. Both packages included benefits counseling and waivers to allow beneficiaries to retain and save more earnings; one also included employment services.

TABLE II.4

AVERAGE HOURS OF SPI-FUNDED SERVICES PROVIDED THROUGH MARCH 2002  
TO PARTICIPANTS WHO ENROLLED THROUGH DECEMBER 2001

	California	Iowa	Minnesota	New Hampshire <sup>a</sup>	New Mexico	New York— Benefits Counseling Only	New York— Benefits Counseling plus Employment Services	North Carolina	Ohio	Oklahoma	Vermont	Wisconsin
Benefits Counseling	39	14	11	15	22	n.a.	n.a.	17	10	10	19	33
Other	134	0	0	8	58	0	n.a.	0	0	34	0	13

Source: Deke and Peikes (2003).

<sup>a</sup>This table reports services delivered to New Hampshire's treatment group only. The control group also received an average of 2.5 hours of benefits counseling.

n.a. = not available; SPI = State Partnership Initiative.

15 hours of employment-related services per participant (including supported employment). All six projects provided *case management* services to help participants to obtain necessary services and supports, and five provided *placement assistance* services to help participants to find and maintain employment. One project provided *job service vouchers* that enabled beneficiaries to obtain vocational services from vendors of their own choosing. Two projects also offered *peer support* to help beneficiaries to deal with the world of work.

In addition to providing direct services, the projects undertook to initiate systems change efforts intended to improve the service environment for both participants and nonparticipants. Those efforts were not measured by the states' final impact estimates, as any resulting changes to the system would have affected the comparison groups as well. Most of the state projects tried to expand access to health insurance for people with disabilities who work. Eight of the 11 states passed legislation that created *Medicaid Buy-In* programs. These efforts, although important to

nonparticipants with disabilities, are unlikely to have substantially improved access for participants who already were benefiting from existing provisions regarding work and health insurance (1619[b] for SSI recipients and the Extended Period of Eligibility for SSDI beneficiaries). To improve service coordination, 8 of the 11 projects offered disability-related services in One-Stop Centers. Many projects relied on interagency meetings and cross-training to try to promote service coordination and integration, as well as to foster better interaction among state agencies that shared responsibility for encouraging people with disabilities to work. Three state projects placed a minor focus on the employer market barrier by offering education and outreach to promote employers' awareness of the abilities and employment potential of people with disabilities. In every case, the projects reported that it was difficult to engage employers in their efforts.

The state evaluations' cost estimates are another measure of the intensity of the services provided to participants. The cost per beneficiary over the course of the project was estimated to be \$11,046 in Wisconsin (excluding overhead costs; Delin et al. 2004), \$2,043 in New Hampshire (Malloy and Priest 2004), \$1,321 in New Mexico (Nelson et al. 2004), and \$345 in Minnesota (Minnesota Work Incentive Connection 2004). Vermont's *annual* cost per beneficiary was about \$550 (Smith and Tremblay 2004).<sup>9</sup>

#### **D. OTHER INITIATIVES SOUGHT TO INCREASE EMPLOYMENT DURING THE DEMONSTRATION**

SSA's efforts to promote beneficiary employment and self-support began even before passage of the 1980 amendments to the Social Security Act, which added several work

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<sup>9</sup> The annual cost of benefits counselors, supervisory staff, and administrative support was roughly \$480,000. To obtain the approximate cost per beneficiary, we divided that amount by the 869 participants who were enrolled through December 31, 2002.



incentives to the SSI program. More recently, the Ticket to Work and Work Incentive Improvement Act of 1999 (Public Law 106-170) created several important new initiatives that affect people who receive disability benefits. In addition, several important recent executive initiatives (the New Freedom Initiative and the President's Task Force on Employment of Adults with Disabilities) have sought to identify and eliminate barriers to employment for people with disabilities. The Ticket program legislation and the executive initiatives have produced many other employment support initiatives in addition to SPI, including efforts by the Centers for Medicare & Medicaid Services (CMS) and DOL.

The implementation of these other demonstrations and initiatives has substantially affected the SPI demonstration and its evaluation. The influx of additional resources enabled some state projects to offer their SPI participants enhanced services, or to offer more beneficiaries services similar to those provided in their state projects. In addition, the new demonstrations and initiatives affected the environments against which the state projects are compared. To the extent that these initiatives promoted the viability of work for all beneficiaries, the effect of services that the state projects provided are harder to detect and interpret.

Since the start of SPI, nine other major initiatives have begun to provide services or to change policies designed to promote employment among people with disabilities, including people who are receiving benefits from SSA. The following list provides an overview of these policy initiatives:

- ***Benefits Planning, Assistance, and Outreach (BPAO).*** This SSA program funds benefits planning for beneficiaries with disabilities who are trying to return to work. Benefit planners provide direct advice and assistance to SSI and SSDI beneficiaries by (1) explaining SSA work incentives and the effects of work on benefits, and (2) providing information on state vocational rehabilitation (VR) systems and other available supports. BPAO providers provide services to the entire United States.
- ***Medicaid Buy-In.*** Recently enacted legislation enables states to modify their Medicaid programs to provide workers who have disabilities with better access to

health insurance. The buy-in programs expand coverage by expanding Medicaid income and resource eligibility standards, and by creating sliding-scale premium arrangements to encourage people with disabilities to maintain employment. Nine of the SPI states started buy-in programs.<sup>10</sup> Currently, about 30 states have Medicaid buy-in programs (White et al. 2005). However, many of those programs began operations after enrollment for SPI had ended.

- ***Medicaid Infrastructure Grant.*** This CMS grant program provides funding to states that want to modify their Medicaid programs to implement a buy-in program, or to provide other employment incentives for people with disabilities.
- ***Demonstration to Maintain Independence and Employment.*** This CMS-funded program was not offered in any of the SPI states. It originally supported efforts in three states (Mississippi, Rhode Island, and Texas) and the District of Columbia to enable people with chronic, disabling conditions to obtain medical benefits without having to first qualify for disability benefits (which typically requires that people quit their jobs). It has since expanded to additional states. The demonstration allows states to provide health care services and supports to working people who need to manage the progression of their diseases.
- ***Work Incentive Grants.*** The Work Incentive Grant Program is funded by DOL to enhance employment opportunities for people with disabilities. The grants encourage One-Stop Career Centers to develop innovative ways to ensure that this population can obtain comprehensive, accessible employment services that will address their barriers to employment.
- ***Employment Assistance Grants Through DOL's Office of Disability Employment Policy.*** This grant program targets planning and implementation activities to enhance the availability and provision of employment services for people with disabilities within the One-Stop delivery system. To improve employment outcomes for people with disabilities, technical assistance grants also are offered to One-Stop Career Centers, State and Local Workforce Investment Boards, Youth Councils, and Workforce Investment Act Grant recipients who serve adults and youths.
- ***Ticket to Work.*** This SSA program introduced a new performance-based method of paying for services to help disabled beneficiaries to obtain and hold jobs, while exercising more consumer choice. SSA issues eligible beneficiaries a ticket that they can take to the service provider of their choice. Providers have the option of deciding whether to accept the ticket. If they do accept it and try to help the beneficiary to obtain employment, their payments are based on achievement of specific milestones, particularly whether the beneficiary successfully moved from the disability rolls to self-supporting employment. The Ticket program was introduced in 13 states during 2002 and was operating in every state by September 2004.

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<sup>10</sup> These states are California, Illinois, Iowa, Minnesota, New Hampshire, New Mexico, New York, Vermont, and Wisconsin. Implementation in New York began in 2003, after enrollment had stopped.

- ***Olmstead Grants.*** This CMS grant program helps states to place into an integrated setting qualified people with disabilities who are in institutions or who are being assessed for institutionalization. The initiative includes three categories of systems grants to states: (1) Nursing Facility Transition Grants, (2) Community-Integrated Personal Service and Support Grants, and (3) “Real Choice” System Change Grants.
- ***Indexing of the Substantial Gainful Activity (SGA) Amount.*** Since 1999, SSA has adjusted the average monthly earnings amount used to determine whether work performed by beneficiaries with disabilities is considered SGA. The annual adjustments are intended to correct for inflation. Before 1999, the Social Security Commissioner instituted regulations specifying the appropriate level to be used to set the SGA.

The initiatives described here have combined to create a dynamic environment that complicates the SPI evaluation. Although employment and training evaluations have long faced the challenge of accounting for local variation in service environments, introduction of these new initiatives took place during the SPI effort, and, in many cases, the new initiatives offered service interventions that the state projects also offered. They therefore affected the mix of services available to participants and potential comparison group members at the same time that the SPI state projects tried to deliver new services to participants. If the new initiatives successfully expanded the availability of employment-support services, the net extent to which the state projects could have expanded services to participants is reduced. This outcome, in turn, would reduce the potential impacts produced by the state projects relative to what was expected at the time that the projects had been designed.

#### **E. THE PROJECTS ARE EXPECTED TO GENERATE SMALL TO MODERATE EFFECTS**

We expect the SPI projects to have small to modest short-term impacts. Although participants face many barriers to employment, most projects focused on one or two barriers. Focused interventions are expected to have the greatest success assisting people whose only barriers are the ones that the interventions have selected. For example, by itself, benefits

counseling, SPI's primary intervention, is not expected to increase employment for participants who do not know how to find and apply for jobs, or who have difficulty maintaining employment. Benefits counseling also may have ambiguous results on short-term employment rates and earnings. It may not be in the interest of all SPI participants to pursue work options, given their low expected earnings and the risk of losing access to several types of public assistance. For example, one-third of SSA beneficiaries who received intensive benefit support through the BPAO initiative indicated that they did not expect to increase employment or earnings (two-thirds did not expect to increase employment because they planned to pursue education or training) (Kregel and Head 2004).

Modest impacts also are expected because two previous SSA demonstrations that provided more-intensive services than those offered by SPI generated only modest absolute increases in participants' earnings. The Transitional Employment Training Demonstration (TETD), which served SSI recipients who have mental retardation, provided a substantially more intense intervention that included job placement, training, and retention services, at an average cost of \$9,800 per participant. The TETD found that earnings increased by 72 percent during the six-year period after enrollment, or an average of \$1,146 per year (2002 dollars) (Decker and Thornton 1995; Thornton 2003). More recently, Project Network provided case management services to a wide cross-section of SSI and SSDI beneficiaries. The services, costing about \$4,508 per treatment group member, increased earnings by seven percent, or by \$239 per year, over the six years after enrollment (2002 dollars) (Rupp and Bell 2003; Kornfeld and Rupp 2000; Kornfeld et al. 1999). In both demonstrations, the small absolute increases in earnings translated into negligible reductions in benefit payments. Because current regulations disregard a substantial amount of earnings when computing benefits, a small absolute change in earnings translates into even smaller effects on benefit receipt.

The final reason to expect modest impacts is that SPI was fielded in an environment in which many other services were available from state VR agencies, community organizations, and the BPAO project. In some states, SPI staff were responsible for obtaining support for and implementing BPAO. Consequently, some BPAO comparison group members received benefits counseling and employment services similar to those being offered by SPI. Because SPI is testing the effect of the additional services that participants receive relative to the services received by the comparison group, receipt of some SPI-like services by the comparison group would lead the SPI evaluations to find smaller impacts than if the comparison group had not received any similar services.



### **III. SELECTION OF COMPARISON BENEFICIARIES**

The core evaluation component of the State Partnership Initiative (SPI) was designed to estimate impacts by comparing outcomes for the beneficiaries who participated in each state project (participants) with outcomes for a comparison group that was selected to match the participants in terms of demographic characteristics, previous benefit receipt, employment, earnings, and economic and service environments. The demonstration design developed by the Social Security Administration (SSA) allowed the state projects to choose their own evaluation designs. All but three projects chose nonexperimental methods. Consequently, when Mathematica Policy Research, Inc. was asked to design a method to estimate project impacts for all of the state projects for the core evaluation component, random assignment had already been ruled out as a result of the states' own decisions. Among the possible nonexperimental approaches to evaluating the projects, selecting comparison groups using propensity score matching (PSM) was the most promising method available.

Dehejia and Wahba (1999) used PSM methods developed by Rosenbaum and Rubin (1983) to approximate the true (experimental) results from the National Job Training Partnership Act. Dehejia and Wahba attributed the success of the nonexperimental PSM method to having ample measures of the preenrollment outcome in their data, and to using PSM to balance the treatment and comparison groups on the groups' preenrollment outcomes and other important characteristics. In light of a lengthy series of articles that had been published in the labor economics literature showing the difficulty of using nonexperimental methods to estimate impacts reliably (see, for example, Fraker and Maynard 1987; LaLonde 1986; Friedlander and Robins 1995), the findings of Dehejia and Wahba appeared to highlight an important nonexperimental method.

In the specific context of the SPI demonstration, PSM looked like it might provide a reliable way to estimate impacts. First, SSA administrative data enabled us to match participants to eligible people living in nondemonstration comparison areas with similar economic and service environments on nearly 250 characteristics. Second, we had large pools of potential comparison group members from which to select. Third, we had excellent employment and earnings data, and, because participants were statistically more likely to be employed and to earn more than were eligible people living in the same areas but choosing not to participate, we believed that the data would help us to select appropriate comparison groups. Finally, the inclusion in the evaluation of three state projects that used random assignment offered the evaluation the unique possibility to test whether the nonexperimental estimates replicated the experimental estimates. The evaluation's Technical Evaluation Support Group agreed that PSM was the best available alternative to random assignment.<sup>1</sup>

This chapter describes the two-step process developed to select the comparison groups necessary to conduct the core evaluation. In Section A, we provide an overview of the comparison beneficiary selection process. Guided by the approach designed and tested by Agodini et al. (2002a, 2002b), we chose individual comparison group members from selected comparison areas. In Section B, we show the similarity of participants and the selected comparison group members. Subsequently, in Chapter IV, we show that, despite passing statistical tests of similarity, the comparison groups do not approximate randomly assigned control groups in the states that used random assignment, and we discuss possible reasons for this finding.

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<sup>1</sup> The design team considered comparing all eligible people living in the catchment areas with all eligible people living in matched comparison areas. However, the small sample sizes targeted by the states would not have been adequate to detect policy-relevant effects.



## **A. SELECTION OF COMPARISON BENEFICIARIES**

The first step in the selection of comparison beneficiaries was to identify a set of comparison counties similar to the counties in which the state projects enrolled beneficiaries. We completed this step in 2002 (Agodini et al. 2002a). In particular, the evaluation wanted to identify comparison counties that offered the same employment opportunities, service environments, and incentives for beneficiaries with disabilities that would have been available to project participants in the absence of SPI. Appendix B summarizes this process.

The counties selected as potential comparison areas had more than enough Supplemental Security Income (SSI) and Social Security Disability Income (SSDI) beneficiaries to enable us to select comparison beneficiaries. Our goal was to have at least five times as many beneficiaries in the comparison areas as a state project had participants. In fact, the selected comparison areas contained at least 10 times as many beneficiaries as participants, and often more than 100 times as many. Appendix Tables B.1 through B.11 provide the list of each of the 11 state project's demonstration and selected comparison areas.

After selecting the comparison areas, we selected the comparison beneficiaries for each state project. We used statistical matching using propensity scores to select comparison groups from eligible beneficiaries who lived in the comparison areas. The matching process selected comparison groups that were similar to participants along 250 important characteristics. For SSI beneficiaries, the characteristics consisted of seven demographic and health conditions, 24 months of preenrollment information for eight outcomes, five annual measures of preenrollment employment, and five annual measures of preenrollment earnings. These characteristics comprise most of the ones that the literature has found to be related to the evaluation's key outcomes.

## 1. Methods and Data Used to Select Comparison Beneficiaries

Our goal was to use a matching process that would select comparison groups that would be similar to participants along many characteristics so that the groups would be able to represent what would have happened to the participants had they not participated in the demonstration. Rosenbaum and Rubin (1983) showed that, when many characteristics are used in a matching process, statistical matching using propensity scores can be used to select comparison groups that are similar, on average, to participants along those characteristics. The propensity score can be used to determine the extent to which one person is similar to another along a number of observed characteristics. The authors showed that, when the outcome is independent of participant status, given the observed characteristics, the outcome also is independent of participant status, given the propensity score. As a result, matching people using propensity scores produces a comparison group that is similar, on average, to participants along the observed characteristics.

The matching process had three steps:

1. ***Estimate a Probability Model of Participant Status.*** We estimated a logit model, where a binary dependent variable that equaled one for participants and zero for potential comparison group members was regressed on independent variables that represented individual characteristics. (We describe the characteristics included in the logit model later.) We estimated the model for each state project, using participants and all potential comparison group members.
2. ***Assign a Propensity Score to Each Individual.*** The propensity score equals the predicted probability of participating, based on the individual's values for the characteristics included in the logit model.
3. ***Use Propensity Scores to Select Comparison Group Member.*** For each participant, the potential comparison group member with the closest absolute propensity score, or the "nearest neighbor," was selected. The selection process was conducted *with replacement*, so that a potential comparison group member could be matched to several participants.

## 2. Potential Comparison Group Members

We selected comparison group members from among all SSA beneficiaries who, after a particular state project was implemented, both lived in the state project's comparison area and met the project's eligibility criteria that we were able to simulate with the SSA data. Those criteria varied across the state projects, but they often required that beneficiaries have a particular diagnosis or meet a particular age requirement (Appendix Table C.1).<sup>2</sup> For most state projects, there were thousands, sometimes tens of thousands, of potential comparison group members. We also excluded a small proportion of participants from the analysis who did not have accurate social security numbers, enrolled after September 2003, or were not active on SSI or SSDI at the time of enrollment. Table III.1 shows the exclusions.

For each state project, we selected comparison groups separately for as many as four groups of participants. The groups were defined according to SSI/SSDI receipt and the population density of the county in which they lived. Specifically, participants were first divided into those who were receiving at intake either SSI benefits only or both SSI and SSDI benefits ("concurrent") (hereafter, "SSI-concurrent" participants) and those who were receiving at intake only SSDI benefits (hereafter, "SSDI-only" participants). Participants are grouped in this way so that we could make use of the monthly preenrollment employment and earnings information tracked by SSA administrative data and available for SSI-concurrent beneficiaries, but not for

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<sup>2</sup> Some state projects required potential participants to meet secondary criteria. The secondary criteria were more subjective than were the primary ones and included such items as whether it had been determined that a beneficiary needed project services to increase earnings substantially. The sample of potential comparison group members was not limited to people who met additional project criteria, because the SSA data rarely contain information that we could use to measure those items. For example, we were unable to proxy participation in a state vocational rehabilitation agency, which, for some projects, was a prerequisite to participation.

TABLE III.1  
RESEARCH SAMPLE FOR PSM  
(Numbers)

	Sample Size at Start	No SSA Data <sup>a</sup>	Exclusions			Final Research Sample Size for PSM
			Enrolled After September 2003	Not Active on SSI or SSDI <sup>b</sup>	Experimental Design <sup>c</sup>	
California	291	—	—	21	—	270
Iowa	667	—	—	18	—	649
Minnesota	597	3	42	55	—	497
New Hampshire	181	—	—	4	—	177
New Mexico	851	2	—	19	—	830
New York	6,156	—	—	124	5,100	932
North Carolina	369	—	—	9	—	360
Ohio	682	1	—	49	—	632
Oklahoma	2,081	9	—	78	1,675	319
Vermont	1,205	11	57	64	—	1,073
Wisconsin	955	—	—	49	—	906
<b>Total</b>	<b>14,035</b>	<b>26</b>	<b>99</b>	<b>490</b>	<b>6,775</b>	<b>6,645</b>

Source: Social Security Administration (SSA) administrative data, the Summary Earnings Record, and a participant file provided by Virginia Commonwealth University were used to create the analytic file required for the comparison group matching procedure.

<sup>a</sup>Reasons for missing SSA data included incorrectly reported social security numbers, no participant application for social security benefits, and no receipt of social security benefits.

<sup>b</sup>SSA administrative data were used to determine whether participants were Supplemental Security Income-only, concurrent, or Social Security Disability Income-only at the time of enrollment. We excluded participants from the final sample if SSA data had not indicated that the participants were active in any of those programs during the enrollment month.

<sup>c</sup>For New York and Oklahoma, we limited matching to beneficiaries who were randomized into the treatment group and who actively participated in the programs. New York randomized beneficiaries who expressed interest in the program; Oklahoma randomized beneficiaries before they expressed interest.

SSDI-only beneficiaries.<sup>3</sup> In addition, the state projects were likely to have affected the employment behaviors of the two groups in different ways, because the SSI and SSDI programs use different rules and work incentives. The two groups of participants were further divided into people who lived in populous counties and people who did not.<sup>4</sup> This division helped us to select comparison groups that were similar to participants along the areas' characteristics used in the area matching process, particularly the general level of economic activity and the availability of employment support services.

For the 11 state projects, comparison groups were selected separately for 25 groups. With the exception of New York, each state project enrolled both SSI and concurrent participants and SSDI-only participants, giving us 21 groups after the first division. For Iowa, Minnesota, New Mexico, and New York, sample sizes among participants living in both populous counties and nonpopulous counties were large enough to further divide the SSI-concurrent participants into those who lived in populous counties and those who did not.

### **3. Measurement of Characteristics of Potential Comparison Beneficiaries**

When deciding whether a potential comparison group member is a good match for a participant, an important issue is the point in time at which we measure the potential comparison group member's characteristics. People usually enter voluntary programs, such as a state project, when they want to find a job or increase their earnings—not at a random point during their lives (Ashenfelter 1978). Thus, we wanted to select comparison group members who were at the

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<sup>3</sup> SSA data are more limited for SSDI-only beneficiaries. As a result, the number of characteristics used in the matching was slightly smaller, but the most important variables, including calendar year earnings and monthly benefit receipt, still were included.

<sup>4</sup> A county was defined as populous if its population density exceeded 90 people per square mile; that definition generally included counties with 50,000 or more residents.

same point in the employment decision process, but who did not have the opportunity to enroll in a state project.

Our matching process addressed this issue by first determining the months during which each potential comparison group member lived in the state project’s comparison area and met its eligibility criteria that we could simulate. We then selected one of those months at random (the “pseudo-enrollment date”) so that the distribution of pseudo-enrollment months for the potential comparison group matched the distribution for the actual enrollment dates for participants. All time-varying characteristics were measured relative to the pseudo-enrollment date for comparison group members and relative to the actual enrollment date for participants.<sup>5</sup>

These characteristics were contained in a file (the “matching file”) that included, for participants and potential comparison group members, information from several extracts of SSA’s data. Two of the monthly preenrollment outcomes—employment and earnings—were available only for SSI and concurrent beneficiaries and only for the periods during which those beneficiaries were on the SSI rolls. They were not available for SSDI-only beneficiaries, regardless of whether those beneficiaries received benefits. Moreover, the data may be inaccurate, because of the way SSA collects the information.<sup>6</sup> To address this limitation, the

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<sup>5</sup> A potential problem with this approach is that, because our matching process focused on each comparison group member’s characteristics at a specific point, it might not have identified another point at which that beneficiary could have been a good (or even better) comparison group member for a specific participant. However, we did not consider that potential problem as a limitation in the matching process, because we had such a large pool of potential comparisons.

<sup>6</sup> We obtained monthly earnings data for SSI beneficiaries from SSA’s Revised Management Information Counts System (REMICS) files. The REMICS files, extracts from the Supplemental Security Record (SSR), are snapshots of the SSR at the end of each month and contain information for all SSI beneficiaries who are on the rolls that month. As such, the files contain prospectively estimated earnings amounts. SSI beneficiaries must estimate their earnings a few months in advance and then reconcile their reports when pay stubs or other verifying information become available. However, SSA field office staff often ask beneficiaries to *overestimate* their earnings to reduce the probability of an overpayment. Verified earnings estimates are available in other SSA data extracts, but those extracts contain *countable* earnings only, rather than total earnings. Countable earnings cannot be used to estimate the net effects that projects have on earnings because they incorporate the effects of SSI work incentives.

matching file also contained calendar year employment and earnings from the Summary Earnings Record (SER). The SER, an extract from the Master Earnings File, contains calendar year earnings data dating to 1951, as well as other identifying information, for people who have worked in covered employment. These data, although measured on a calendar-year basis instead of a monthly one, are more complete and more accurate than are the monthly data.<sup>7</sup>

#### **4. Characteristics Used in the Matching Process**

Unfortunately, it was not possible to include all of the available characteristics in the logit model for each state project, because the number of characteristics exceeded the number of beneficiaries in each participant group. Even if there had been enough beneficiaries in a participant group to estimate such a logit model, some characteristics still could not have been included, because many of them were correlated. If they had been included, the coefficients for those characteristics would have suffered from collinearity problems.

To address this issue, the matching process used the subset of characteristics that produced a comparison group similar to participants along *all* of the available characteristics. The subset of characteristics initially used in the matching process (the first iteration) included those that statistical tests indicated were different across participants and potential comparison group members. We then selected a comparison group and conducted a test to determine whether the comparison group selected on this subset of characteristics was well matched to the treatment group along *all* the characteristics. Table III.2 summarizes the subset of characteristics that we

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*(continued)*

Because projects are expected to affect the use of those incentives, countable earnings might differentially capture participants' and comparison group members' actual earnings.

<sup>7</sup> Agodini et al. (2002a) describe how the matching file is created and provide a brief description of the SER.

TABLE III.2

CHARACTERISTICS USED IN THE FIRST ITERATION  
OF THE BENEFICIARY MATCHING PROCESS

Characteristic	Participant Group	
	SSI-Concurrent	SSDI-Only
Age (Years)	X	X
Log Age Squared	X	X
Male	X	X
White <sup>a</sup>	X	X
Years of Education	X	X
Years of Education Missing	X	X
Living Alone at Enrollment	X	
Lived with Another SSI Recipient <sup>b</sup>	X	
Lived in Medicaid-Funded Facility in the Two Years Before Enrollment <sup>b</sup>	X	
Diagnosis of Mental Illness	X	X
Diagnosis of Mental Retardation	X	X
Diagnosis Missing	X	X
Eligible for Medicaid	X	
On SSI Before Age 18	X	
Months on SSI in Previous Two Years (Current Spell)	X	
Employed in Month Before Enrollment <sup>c</sup>	X	
Unemployed for Entire Two Years Before Enrollment	X	
Log of Earnings in Month Before Enrollment <sup>c</sup>	X	
Log of Earnings in 6th Month Before Enrollment <sup>c</sup>	X	
Log of Earnings in 12th Month Before Enrollment <sup>c</sup>	X	
Log of Earnings in 18th Month Before Enrollment <sup>c</sup>	X	
Log of Earnings in 24th Month Before Enrollment <sup>c</sup>	X	
Earnings Ever Missing in Two Years Before Enrollment <sup>c</sup>	X	
Ever Used SSI Work Incentive in Year Before Enrollment	X	
Active SSI Status in Month Before Enrollment	X	
Active SSI Status in 6th Month Before Enrollment	X	
Active SSI Status 12th Month Before Enrollment	X	
Active SSI Status 18th Month Before Enrollment	X	
Active SSI Status 24th Month Before Enrollment	X	
Received SSI Cash Benefit in Month Before Enrollment	X	
Received SSI Cash Benefit in 6th Month Before Enrollment	X	
Received SSI Cash Benefit in 12th Month Before Enrollment	X	
Received SSI Cash Benefit in 18th Month Before Enrollment	X	
Received SSI Cash Benefit in 24th Month Before Enrollment	X	
Active SSDI Status in Month Before Enrollment	X	X
Active SSDI Status in 6th Month Before Enrollment	X	X
Active SSDI Status in 12th Month Before Enrollment	X	X
Active SSDI Status in 18th Month Before Enrollment	X	X
Active SSDI Status in 24th Month Before Enrollment	X	X



TABLE III.2 (*continued*)

Characteristic	Participant Group	
	SSI-Concurrent	SSDI-Only
Log of Average SSDI Monthly Benefit in Two years Before Enrollment	X	X
Received Unearned Income in Any of the Three Months Before Enrollment	X	
Log of SER Earnings in First Year Before Enrollment	X	X
Log of SER Earnings in Second Year Before Enrollment	X	X
Log of SER Earnings in Third Year Before Enrollment	X	X
Log of SER Earnings in Fourth Year Before Enrollment	X	X
Log of SER Earnings in Fifth Year Before Enrollment	X	X
Employed in First Year Before Enrollment	X	X
Employed in Second Year Before Enrollment	X	X
Employed in Third Year Before Enrollment	X	X
Employed in Fourth Year Before Enrollment	X	X
Employed in Fifth Year Before Enrollment	X	X
Enrolled in First Quarter of Time Period that State Project Operated	X	X
Enrolled in Second Quarter of Time Period that State Project Operated	X	X
Enrolled in Third Quarter of Time Period that State Project Operated	X	X

<sup>a</sup>Because nearly every member of the New Hampshire SSDI-only group was white, this characteristic was not used in that state's initial SSDI-only model.

<sup>b</sup>Because the New Hampshire SSI group had almost no participants or potential comparison group members with these characteristics, they were not used in that state's initial SSI-concurrent model.

<sup>c</sup>Because Oklahoma's state project targeted only beneficiaries who were unemployed, these monthly employment characteristics were not included in that state's initial SSI-concurrent model.

SER = Summary Earnings Record; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

used in the initial iteration of the matching process. It included approximately 50 characteristics for the SSI-concurrent group and 26 characteristics for the SSDI-only group.

## **5. Tests Used to Assess the Comparability of Participants and the Comparison Groups**

To test the similarity of participants and the comparison groups, we followed the general procedures laid out in Agodini et al. (2002a, 2002b), which the authors tested on four state projects (Iowa, New York, Vermont, and Wisconsin) with an earlier cohort of enrollees. We note where we have deviated from the matching process described by Agodini et al.

In addition to showing the usefulness of propensity scores for selecting comparison groups, Rosenbaum and Rubin (1983) also showed that a comparison group selected using propensity scores could produce unbiased impact estimates if two conditions are satisfied: (1) all the characteristics that are related to participant status and also to outcomes are observed, and (2) participants and comparison group members with similar propensity scores are similar along the measured characteristics. The second condition means that the logit model must produce an estimate of the propensity score such that, at each value of the estimated propensity score, the characteristics of participants and comparison group members are similar.

It is difficult a priori to determine whether our approach to selecting comparison groups satisfied the first condition of including all of the important predictors of future employment. As described in this chapter and in Chapter IV, our matching process selected comparison groups that were similar to participants, on average, along most of the characteristics that the literature has found are related to the outcomes for which impacts will be computed. However, certain characteristics that the literature indicates are related to the outcomes of interest were not included in the matching process because they were not available in the SSA data. For example, the SSA data do not contain information about the occupation and industry in which a beneficiary has worked, the beneficiary's functional limitations, or individual characteristics that

are difficult to quantify, such as motivation and work habits. Whether it is important to include any of these additional characteristics in the matching process depends on the extent to which they influence outcomes among people who have been matched along all the characteristics included in the matching process, and the extent to which they are not captured in other characteristics that are included. Fortunately, we were able to conduct analyses to help us to understand whether our design produced valid impact estimates—the ultimate goal of this work. These validity analyses are described in Chapter IV. We first determined whether our comparison groups were well matched on observable characteristics—the second condition. In Chapter IV, we assess the first condition—whether they were well matched on unobservable characteristics.

To determine whether the participants and selected comparison group members were well matched on observable characteristics, we first assigned participants and comparison group members to strata, where each stratum included participants and comparison group members whose average propensity scores were not significantly different.<sup>8</sup> We then conducted, within each stratum, two-tailed *t*-tests of the similarity of each of the full set of nearly 250 characteristics between participants and comparison group members. We considered a comparison group to be well matched to its respective group of participants if, for each stratum, 95 percent of the statistical tests of the similarity of each of the 250 characteristics failed to

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<sup>8</sup> The strata were defined in a way that has often been used in other studies (see, for example, Dehejia and Wahba 1999). In particular, the collection of participants and comparison group members is first ranked according to the members' propensity scores. Individuals are then divided into strata, with an equal number of individuals in each stratum. Each stratum should contain enough people to ensure that statistical tests conducted within it have enough power to detect any meaningful differences in the characteristics of participants and comparison group members. A stratum that contains about 80 people (where about 40 are participants and the other 40 are comparison group members) should be sufficient. Given this definition, we determined that three strata would be feasible given the sample size for most state projects. Two groups (New Hampshire SSI-concurrent and Oklahoma SSDI-only) did not have a sufficient sample size to divide into three strata; we used two strata for those groups. Within each stratum, we conducted a statistical test of the similarity of the propensity score of participants and comparison group members. If each of these tests failed to reject a difference, we concluded the strata were properly defined.

detect a statistically significant difference (at the 0.05 level). We refer to this test as “the 95 percent test.” If a comparison group did not pass any of these stratum-specific tests, we respecified the logit model and reselected the comparison group until it passed.<sup>9</sup> For characteristics that were already included in the model but nevertheless differed across participants and comparison group members, respecifying the logit meant adding higher-order or different specifications for those characteristics. Examples of the additional variables that we included are age cubed, average earnings in the past two years, and log of earnings in the past year squared.

In addition to ensuring that the average propensity score across participants and comparison group members were similar, and that the 95 percent test passed, we determined that the two groups did not show patterns of differences among any of the characteristics that were significantly different within the stratum (fewer than five percent of characteristics). For example, it is preferable that any statistically significant differences are scattered over time, instead of clustered within a few monthly preenrollment values. We also paid closest attention to eliminating preenrollment differences in average earnings and employment rates, because those rates are strong predictors of postenrollment values of earnings and employment.

## **B. COMPARISON GROUPS SELECTED FROM THE MATCHING PROCESS**

For each state project, we selected comparison groups separately for as many as four groups of participants, as defined according to SSI/SSDI receipt and the population density of the county in which the participants lived. We conducted statistical tests on each group to determine whether participants and the selected comparison group members with similar propensity scores

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<sup>9</sup> The 95 percent test described in Agodini et al. (2002a) tested the total number of two-tailed *t*-tests of similarity summed across strata. Our test was more conservative because it also tested this within each stratum.

were similar along the characteristics that were related to both participant status and outcomes (using the 95-percent test). Overall, the results of the 95-percent tests were encouraging. For each of the 25 participant groups, we were able to draw a comparison group that passed the stratum-specific 95-percent test. In addition, we did not find any patterns among those characteristics that remained dissimilar. The number of iterations necessary to select an acceptable comparison sample averaged 4.5, with a range from a minimum of 2 (New Hampshire SSDI-only and North Carolina SSI-concurrent and SSDI-only) to a maximum of 10 (Oklahoma SSI-concurrent) (see Table III.3). In this section, we compare the overall similarity of participants and the selected comparison group members by combining samples in populous and nonpopulous groups and across strata for each state project's SSI-concurrent group and SSDI-only group.

### **1. Comparability of SSI-Concurrent Groups**

For the state project's SSI-concurrent groups, the comparison group matching procedure produced a sample that was remarkably similar across all the characteristics measured. For all state projects, the selected comparison group was similar to participants in diagnosis, education, benefit type and amount, and work history characteristics. Table III.4 illustrates the similarity of recent employment histories of the participants and selected comparison group members. With the exception of SER earnings in Ohio and earnings and employment in the month before enrollment in Oklahoma, the selected comparison groups were statistically indistinguishable from participants on estimates of monthly earnings and employment from SSA administrative data, as well as on estimates of yearly earnings and employment from SER data. The small differences in Oklahoma (four percent of participants and zero percent of comparison group members employed during the month before intake) arise because we limited the pool of potential comparison group members to those who, according to SSA data, were unemployed

TABLE III.3

## NUMBER OF MATCHING ITERATIONS PER PARTICIPANT GROUP

	Number of Iterations to Select the Comparison Group			
	SSI-Concurrent			SSDI-Only
	Populous	Nonpopulous	Combined	
California	—	—	6	3
Iowa	6	3	—	3
Minnesota	4	7	—	5
New Hampshire	—	—	7	2
New Mexico	4	4	—	4
New York	7	5	—	n.a.
North Carolina	—	—	2	2
Ohio	—	—	4	4
Oklahoma	—	—	10	5
Vermont	—	—	4	3
Wisconsin	—	—	5	3
<b>Mean Number of Iterations</b>	<b>5.3</b>	<b>4.8</b>	<b>5.4</b>	<b>3.4</b>

n.a. = not applicable; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

TABLE III.4  
EMPLOYMENT HISTORY OF SSI AND CONCURRENT PARTICIPANTS AND SELECTED COMPARISON GROUP MEMBERS

	Number Enrolled Through September 2003 (Unweighted)			Month Before Intake			Year Before Intake		
	Participants		Comparison	Earnings (Dollars)		Employed (Percentage)	Earnings (Dollars)		Employed (Percentage)
	Participants	Comparison		Participants	Comparison	Participants	Participants	Comparison	Participants
California	206	204	171	220	28.2	26.7	1,933	2,266	51.5
Iowa	373	313	217	261	43.2	40.8	3,283	3,394	61.7
Minnesota	285	279	225	221	38.6	36.5	2,211	2,015	62.5
New Hampshire	72	53	61	61	16.7	13.9	1,403	3,469	44.4
New Mexico	524	436	116	97	43.5	43.5	1,780	1,962	43.5
New York	1,050	876	89	91	14.3	14.2	1,419	1,494	34.5
North Carolina	204	193	92	126	17.6	16.7	2,823	2,614	50.0
Ohio	400	386	110	131	17.8	17.8	1,795	2,796**	50.5
Oklahoma	314	247	17	0***	3.5	0.0***	1,030	820	28.3
Vermont	592	586	186	208	26.9	28.2	3,085	3,284	55.2
Wisconsin	542	532	161	185	28.6	27.1	2,016	2,103	54.4

Source: Estimates of monthly earnings and employment are based on Social Security Administration administrative data. Estimates of yearly earnings and employment are based on Summary Earnings Record data.

Notes: All dollar amounts are inflation adjusted to 2004 dollars using the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

Statistics are computed using weights, where each participant received a weight of one and each comparison group member received a weight equal to the number of times that he or she was matched to a participant.

SSI = Supplemental Security Income.

\*Significantly different from participants at the 0.10 level, two-tailed test.

\*\*Significantly different from participants at the 0.05 level, two-tailed test.

\*\*\*Significantly different from participants at the 0.01 level, two-tailed test.

during the month before intake. We limited the pool in this way to reflect the Oklahoma state project's stated criterion of excluding employed people from participation. However, SSA data indicate that a small number of Oklahoma's participants (11 of 314) were working during the month before intake. Overall, the matching procedure selected comparison groups that had recent employment history that was statistically comparable to that of the participant samples.

These small differences are in contrast to the marked differences between participants and the pool of potential comparison group members (Appendix Tables C.2 through C.12). For example, Table C.2 displays the baseline characteristics for the California project's participant sample, selected comparison group, and potential comparison group. A focus on employment and earnings history from the SER shows that the average participant was much more likely than the average potential comparison group member to be employed (approximately 50 percent versus 20 percent), and to have higher annual earnings (\$2,000 versus less than \$1,000 per year). However, the comparison group selected using PSM was statistically indistinguishable from the participants on these and other important characteristics.

The resulting comparison groups were remarkably similar to the participant groups on benefit type at intake (Table III.5). Each state project's SSI-concurrent group included participants who, at enrollment, were receiving either SSI benefits only or both SSI and SSDI benefits. Because the SSI and SSDI programs provide different work incentives and serve populations with different characteristics, the state projects were expected to affect the employment behaviors of the two groups differently. Therefore, benefit receipt during the months before enrollment is one of many important characteristics on which participants and comparison group members should be similar. Across the 11 state projects, no statistically significant differences between participants and the selected comparison groups in the proportion receiving only SSI and the proportion receiving both SSI and SSDI benefits were observed. For



TABLE III.5  
BENEFIT TYPE OF SSI AND CONCURRENT PARTICIPANTS AND  
SELECTED COMPARISON GROUP MEMBERS  
(Percentages)

	Social Security Benefit Type at Intake			
	SSI Only		Concurrent	
	Participants	Comparison	Participants	Comparison
California	50.0	45.6	50.0	54.4
Iowa	35.7	36.7	64.3	63.3
Minnesota	35.4	30.5	64.6	69.5
New Hampshire	44.4	38.9	55.6	61.1
New Mexico	49.4	49.2	50.6	50.8
New York	69.4	69.3	30.6	30.7
North Carolina	39.7	42.2	60.3	57.8
Ohio	47.5	44.8	52.5	55.3
Oklahoma	74.2	74.8	25.8	25.2
Vermont	39.7	39.3	60.3	60.7
Wisconsin	49.4	47.6	50.6	52.4

Source: Estimates are based on Social Security Administration administrative data.

Note: Statistics are computed using weights, where each participant received a weight of one and each comparison group member received a weight equal to the number of times that he or she was matched to a participant.

SSI = Supplemental Security Income.

\*Significantly different from participants at the 0.10 level, two-tailed test.

\*\*Significantly different from participants at the 0.05 level, two-tailed test.

\*\*\*Significantly different from participants at the 0.01 level, two-tailed test.

example, in the New Mexico program at enrollment, 49.4 percent of participants were receiving SSI only, and 50.6 percent were receiving both SSI and SSDI. In our matched comparison group, 49.2 percent were receiving SSI only, and 50.8 percent were receiving both SSI and SSDI benefits. The 10 other state projects had comparable results.

## **2. Comparability of SSDI-Only Groups**

The comparison group matching procedure was similarly successful in choosing comparison members who were comparable to the SSDI-only participants. Table III.6 summarizes these results for a few selected characteristics: the average monthly SSDI benefit during the two years before enrollment, SER earnings during the year before enrollment, and employment during the year before enrollment. Although we found a small number of statistically significant differences between the two groups on these characteristics, overall, for each state project, the resulting comparison group appeared to be quite similar to the participant group. For example, in the Iowa state project, comparison group members were similar to participants in their average monthly SSDI benefit (\$740 versus \$770), and in their earnings during the year before enrollment (\$3,511 versus \$4,197). In addition, a comparable proportion of comparison group members were employed during the year before working—64 versus 63 percent.

## **3. Summary**

A beneficiary enrolls in a state project after making a personal, voluntary decision to participate. That decision might be related simply to geography or to timing, but it also could be related to the participant's observable and unobservable demographic or human capital characteristics. We therefore expected that beneficiaries who participated in SPI would differ from the average SSI/SSDI beneficiary in their motivation to work, work histories, and other observed characteristics that might be related to employment and earnings outcomes examined in

TABLE III.6  
BENEFIT AMOUNT AND EMPLOYMENT HISTORY OF SSDI-ONLY PARTICIPANTS AND SELECTED COMPARISON GROUP MEMBERS

	Number Enrolled Through September 2003 (Unweighted)		Average Monthly SSDI Benefit in Two Years Before Intake (Dollars)		Earnings in Year Before Intake (Dollars)		Employed in Year Before Intake (Percentage)	
	Participants	Comparison	Participants	Comparison	Participants	Comparison	Participants	Comparison
California	64	63	857	901	2,548	3,913	65.6	65.6
Iowa	276	270	740	770	3,511	4,197	64.1	63.4
Minnesota	212	211	785	811	3,219	4,769**	60.8	61.3
New Hampshire	105	100	774	780	2,963	2,360	53.3	50.5
New Mexico	306	301	774	804	2,554	2,230	44.8	39.5
New York	0	0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
North Carolina	156	148	765	830**	3,674	5,655	53.8	55.8
Ohio	232	228	745	760	2,422	2,794	52.6	52.6
Oklahoma	83	66	718	702	3,212	1,921	37.3	39.8
Vermont	481	478	743	830***	3,746	5,736***	58.6	59.7
Wisconsin	364	357	791	807	3,126	3,932	49.2	47.8

Source: Estimates of monthly earnings and employment are based on Social Security Administration administrative data. Estimates of yearly earnings and employment are based on Summary Earnings Record data.

Notes: All dollar amounts are inflation adjusted to 2004 dollars using the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

Statistics are computed using weights, where each participant received a weight of one and each comparison group member received a weight equal to the number of times that he or she was matched to a participant.

n.a. = not applicable; SSDI = Social Security Disability Insurance.

\*Significantly different from participants at the 0.10 level, two-tailed test.

\*\*Significantly different from participants at the 0.05 level, two-tailed test.

\*\*\*Significantly different from participants at the 0.01 level, two-tailed test.

the evaluation. Appendix Tables C.2 through C.22 present characteristics from each state project's SSI-concurrent and SSDI-only participant samples (Column 1) and the potential comparison group members who live in the chosen comparison areas (Column 3). Not surprisingly, participants differed significantly from the average potential comparison group member across most observable characteristics. For example, for almost every state project, across both SSI-concurrent and SSDI-only groups, the average participant had more years of education than did the average potential comparison group member, was more likely to have used SSA work incentives during the year before intake, and was more likely to have been employed recently. However, comparison groups selected using the PSM process were similar to participants along the entire spectrum of available characteristics, including diagnosis, education, benefit type and amount, and work history characteristics (Appendix Tables C.2 through C.22, columns 1 and 2).

#### **IV. ASSESSING THE VALIDITY OF THE COMPARISON GROUPS**

As described in Chapter III, the matching process selected comparison groups that were well matched to participants along many important characteristics. Despite our best efforts to select well-matched comparison groups, however, results based on a nonexperimental comparison group design are inherently uncertain. Our process for selecting such groups ensured that they were similar, on average, to participants along all the characteristics for which we have data. These characteristics are most of the ones that the literature has found to be related to the outcomes for which impact estimates will be computed.

Even so, the two groups could have differed along important characteristics for which we did not have data. As an example, people who are motivated to work may be ones who also were interested in participating in a state project. Unfortunately, Social Security Administration (SSA) administrative data do not contain direct measures of the extent to which an individual is motivated to work, so we were not able to include this characteristic directly in the matching process. Consequently, rather than reflect the true effect of the state projects, results based on our comparison groups may reflect both the true effect of the state projects and important unmeasured differences between participants and the comparison groups that affect outcomes.

To assess whether the comparison group design would produce valid results for all 11 state projects, we conducted validity tests for the 3 state projects that used random assignment. The validity analyses compared impact estimates produced by the comparison groups with true estimates produced by the randomized design. This approach focuses on outcomes rather than on characteristics, which were used to assess the success of the matching process (and which were discussed in Chapter III).

This chapter is divided into three sections. Section A describes the approach used to conduct validity tests. Section B presents the findings from the comparison of impacts derived from comparison groups identified with propensity score matching (PSM) compared with those obtained from a randomized design. Section C presents our conclusions.

## **A. APPROACH**

The validity analysis compares impacts based on experimental methods with those based on the comparison groups selected through PSM. The first step in the analysis consists of computing experimental results for each of the three state projects in which a randomized design was used (New Hampshire, New York, and Oklahoma). Experimental results are computed as the difference in average outcomes between the randomly assigned treatment groups and the control groups.<sup>1</sup> To adjust for any preenrollment differences between the two groups that may have occurred by chance, we used the difference-in-differences (D-in-D) method to estimate those results. Results based on the comparison group design were computed in a similar way, except that, rather than use randomly assigned control groups, we used comparison groups that were selected on the basis of the characteristics of the treatment groups. Because experimental methods are widely regarded as the benchmark for estimating the effect of an intervention, the results of the validity analysis provide a strong indication of whether results from comparison groups matched with the PSM reflect the true effect of the state projects (Orr 1999; Ashenfelter 1987; LaLonde 1986).

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<sup>1</sup> We use the term “control group” to refer to the randomly assigned groups; we use the term “comparison group” to indicate the nonexperimental groups chosen through PSM.

## 1. Method Used to Compute Impacts

We could have simply compared outcomes of the treatment and comparison (control) groups to estimate program impacts in the three states that used randomized designs. Instead, we used regression models because regression analysis produces more-precise impact estimates, and it eliminates any bias due to chance preenrollment differences between the treatment and comparison groups. All impact estimates are calculated using the D-in-D method. This approach controls for any fixed, preexisting differences between treatment and comparison (control) groups that occur due to chance. It works by comparing the change in the outcome measure (employment or earnings) between the pre- and postenrollment periods for the treatment group ( $T$ ) with the same change measured for the comparison (control) group ( $C$ ):

$$(1) (\bar{Y}_{T,post} - \bar{Y}_{T,pre}) - (\bar{Y}_{C,post} - \bar{Y}_{C,pre}),$$

where  $\bar{Y}$  is the average value of the dependent variable, and *pre*- and *post*- represent the preenrollment period and postenrollment period, respectively.

The D-in-D method uses the following statistical model:

$$(2) Y_i = \alpha + \beta_1 P_i + \beta_2 X_i + \varepsilon_i,$$

where

- $P_i$  is a binary indicator that equals one for treatment-group beneficiaries and zero otherwise
- $X_i$  is a set of individual-level observable characteristics
- $Y_i$  is the dependent variable expressed as the difference in outcomes in the “postenrollment” and “preenrollment” periods
- $\varepsilon_i$  is an error term

To estimate equation (2), we used a linear regression, estimated by ordinary least squares (OLS). We also adjusted the variances of the coefficients to account for the relaxation of the assumption that the variance of the error term ( $\varepsilon_i$ ) would be constant across individuals (Deke and Peikes 2003).<sup>2</sup> The coefficient  $\beta_1$  provides the D-in-D effect of the offer of the intervention on outcomes during the postenrollment period.

## 2. Regression Specifications

We estimated impacts for the three states that implemented random assignment. We generated two sets of estimates for New York because that state operated two separate interventions: (1) benefits counseling alone, and (2) benefits counseling plus employment services. We also estimated impacts for one of New York’s two sites—Buffalo—because the state project staff reported that the project was implemented more effectively at that site than at the other site in the state. For New Hampshire and Oklahoma, we estimated outcomes separately for (1) beneficiaries who were receiving either Supplemental Security Income (SSI) benefits only or were “concurrent” beneficiaries receiving both SSI and Social Security Disability Income (SSDI) benefits (hereafter, “SSI-concurrent” beneficiaries); and (2) beneficiaries who were receiving only SSDI (hereafter, “SSDI-only” beneficiaries). We estimated impacts in this way to make use of the monthly postenrollment employment and earnings information that is available for SSI beneficiaries, but not for SSDI-only beneficiaries. Furthermore, the state projects are likely to affect employment behavior of the two groups differently, because the SSI and SSDI programs provide different work incentives and serve different populations. For New York, which did not enroll any SSDI-only beneficiaries, we estimated outcomes only for the SSI-

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<sup>2</sup> Specifically, we used the so-called Huber-White (or “sandwich”) estimator to correct for heteroskedasticity (White 1980).



concurrent group. For Oklahoma, we present impacts for the SSI-concurrent group only, because the sample size of the SSDI-only group was too small to allow for estimation of impacts.

We included a series of covariates in the models to adjust for characteristics that were included in the matching process, but that still might have differed across participants and comparison group members. The models controlled for baseline values of the following characteristics: (1) disability diagnosis (mental disorder, musculoskeletal system disorder, neoplasm, nervous system disorder, mental retardation, and missing diagnosis); (2) age (younger than 25 years, 25 to 39 years, 40 to 54 years, and 55 or older); (3) male; (4) white; (5) education (less than high school, high school, postsecondary, college or more, and missing); (6) whether the participant was on the rolls before age 18; (7) SSDI benefit amount paid; and (8) employment status and earnings according to Summary Earnings Record (SER) data for each of the years before enrollment from two years before enrollment to five years before (values for the second year before enrollment were omitted when we examined change over time relative to the two years before enrollment).<sup>3,4</sup>

In addition to those variables, models for SSI-concurrent beneficiaries also controlled for several other characteristics. The characteristics included (1) whether the beneficiary lived alone before the randomization month; (2) whether the beneficiary had ever lived in a medical facility during the two years before randomization; (3) his or her concurrent status; (4) SSI benefit amount paid; and (5) whether the beneficiary used a work incentive during the year before randomization.

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<sup>3</sup> Disability diagnosis was used only for the New Hampshire SSDI-only group. New York and Oklahoma only targeted people with mental illness, and the sample size of New Hampshire's SSI-current group was too small.

<sup>4</sup> As a sensitivity test, we also used log-transformed SER earnings and SSA benefit amounts as control variables in each regression. The results were not sensitive to the specification of those variables.

### **3. Outcomes**

We analyzed four key employment and earnings outcomes. We focused on earnings and employment outcomes because changes in those outcomes must occur before changes in benefit receipt and total income can be expected to occur. We measured three outcomes using SER earnings data for the sample of treatment and comparison (control) group members randomized through December 2001. That cutoff date was dictated by the availability of SER data in full calendar years, and by the 14-month lag in the availability of those data. Thus, we examined the postenrollment experience of the sample for one year, using the following measures:

- Change in proportion employed (that is, having reported earnings) at all during the year after the calendar year of enrollment versus the year before the calendar year of enrollment
- Difference between annual earnings during the year after the calendar year of enrollment versus the year before the calendar year of enrollment
- Difference between annual earnings during the year after the calendar year of enrollment versus the average over the two years before the calendar year of enrollment

In addition, for SSI and concurrent beneficiaries, for whom SSA data were available for a longer follow-up period, we examined one outcome for the sample of participants and comparison (control) group members enrolled through February 2003:

- Change in proportion employed at all during the six months after the month of randomization versus the six months before the month of randomization

### **4. Intent-to-Treat Analysis and Participation Rates**

The three projects randomized beneficiaries at different points. Oklahoma randomized eligible beneficiaries before contacting them. New York sent eligible beneficiaries a letter asking them whether they were interested in working and randomized everyone who expressed interest in learning more about the project. New Hampshire randomized beneficiaries after they

had already volunteered to participate. We calculated impacts for all three projects based on an intent-to-treat analysis. In other words, all observations in the study sample were included in the analysis regardless of whether the sample members received the treatment for which they were assigned. That approach preserves the benefits of random assignment for causal inference and yields an unbiased estimate of the effects of being offered the intervention. It also allows for generalizability of the findings to populations similar to the demonstration's target population. We then calculated impacts *per participant* for New York and Oklahoma by dividing the aggregate estimate of impacts by the participation rates among the respective treatment groups: 29.6 percent for New York's benefits counseling-only group, 32.3 percent for New York's benefits counseling and employment services group, and 21.8 percent for Oklahoma's treatment group.<sup>5</sup> As background, the Transitional Employment Training Demonstration, an employment promotion demonstration program for SSI beneficiaries with mental retardation, had participation rates of 5.4 percent among all eligible individuals and 31 percent among eligible individuals who expressed an interest in the demonstration (Thornton et al. 1988).

We estimated impacts for the comparison group design using the date of enrollment or pseudo-enrollment for comparison group members as the reference date. Impacts for the randomized design were calculated relative to the date of randomization.

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<sup>5</sup> Participants in New York were defined as individuals who signed a consent form and attended a counseling session about the Section 1619(a) work incentive. (Section 1619[a] is a work incentive that allows SSI beneficiaries to remain eligible to receive SSI checks when working if they still have a disability and meet income and asset tests. Section 1619[b] provides Medicaid coverage for beneficiaries who are working.) The participation rate for each treatment group was defined as the number of participants in the group divided by the number of participants and nonparticipants in the group.

Participants in Oklahoma were defined as having received services. Oklahoma defined participants as those who used their vouchers (a key component of the overall Oklahoma intervention), as well as those who received benefits counseling only. Thirty-eight percent of participants used their vouchers.

## B. VALIDITY TEST FINDINGS

We compared per-participant treatment-*control group* differences in outcomes (based on randomized designs) with treatment-*comparison group* differences (based on the nonexperimental matching design) in New York, New Hampshire, and Oklahoma. That comparison assessed the validity of the comparison groups selected using PSM.

**New York.** Estimates of the impact on earnings from the comparison group were a poor approximation of the impacts from the experimental design. As Table IV.1 shows, the comparison group estimates overestimated the impact on employment rates for the benefits counseling-only group: (14 percentage points [pp] [ $p = 0.001$ ], compared with 9 pp [ $p = 0.19$ ] for the experimental estimates). In other words, estimates based on PSM incorrectly concluded that there was a moderate and statistically significant effect on employment when the randomized results indicated that there actually was no statistically significant effect. As Table IV.2 shows, the pattern persisted in the benefits counseling and employment services group, but, in both cases, were statistically significant and of comparable magnitude: 26 pp ( $p < 0.001$ ), versus 17 pp ( $p < 0.01$ ) for the experimental estimates. Notably, the comparison group approach incorrectly estimated impacts on earnings. For example, as Tables IV.1 and IV.2 show, it estimated statistically significant positive impacts of between \$1,000 and \$1,200, whereas the experimental estimates were statistically significant and negative for the benefits counseling-only group ( $-\$1,080$  to  $-\$1,161$ , depending on the model specification), and  $-\$367$  to  $-\$455$  and not statistically significant for the benefits counseling and employment services group.

**New York—Buffalo Only.** The findings for the New York state project as a whole called into question the ability of PSM to yield unbiased (accurate) impact estimates. However, those findings might have been the result of the difficulty of matching a comparable group to beneficiaries in New York City, the main site for the New York project, and a unique area. We

TABLE IV.1

PER-PARTICIPANT IMPACT ESTIMATES, BY COMPARISON GROUP SELECTION METHOD:  
NEW YORK—BENEFITS COUNSELING ONLY

	All		Buffalo Site	
	PSM	Random Assignment	PSM	Random Assignment
<b>SER Outcomes</b>				
<b>Change in Proportion Employed in Year After and Year Before Randomization (Percentage Points)</b>				
Impact	14.3***	8.8	7.7	4.6
p-Value	0.001	0.186	0.289	0.683
<b>Difference Between SER Earnings in Year After and Year Before Randomization (Dollars)</b>				
Impact	1,214***	-1,080*	1,163**	-473
p-Value	<0.001	0.059	0.034	0.525
<b>Difference Between SER Earnings in Year After and Two Years Before Randomization (Dollars)</b>				
Impact	977***	-1,161**	673	-448
p-Value	0.001	0.045	0.181	0.555
Research Sample Through 2001 (T; C)	277; 253	937; 914	96; 82	259; 225
<b>SSA Data Outcome: Change in Proportion Employed in Six Months After and Six Months Before Randomization</b>				
Impact (Percentage Points)	0.027	0.0	6.1	5.9
p-Value	0.144	0.972	0.252	0.325
Research Sample Through February 2003 (T; C)	504; 457	2,215; 1,745	113; 95	319; 238

Source: Calculations conducted by Mathematica Policy Research, Inc. on SSA administrative and SER data.

Notes: Due to a shorter lag time to receive SSA data than SER data, we were able to include later enrollees for analyses of the SSA data. The SER cohort includes those who were enrolled through December 2001. The SSA cohort includes enrollees through February 2003.

The research sample for the PSM results contained participants enrolled through the date shown and their selected comparison group members. The sample for the random assignment results contained all beneficiaries randomized to the treatment and control groups through the dates shown. Estimates were divided by the participation rate to obtain comparable per-participant estimates.

The participation rate for the New York state project was 29.6 percent. The participation rate for the Buffalo site was 37.1 percent.

C = comparison/control; PSM = propensity score matching; SER = Summary Earnings Record; SSA = Social Security Administration; T = treatment.

\*Impact significantly different from zero at the 0.10 level.

\*\*Impact significantly different from zero at the 0.05 level.

\*\*\*Impact significantly different from zero at the 0.01 level.

TABLE IV.2

PER-PARTICIPANT IMPACT ESTIMATES, BY COMPARISON GROUP SELECTION METHOD:  
NEW YORK—BENEFITS COUNSELING AND EMPLOYMENT SERVICES

	All		Buffalo Site	
	PSM	Random Assignment	PSM	Random Assignment
<b>SER Outcomes</b>				
<b>Change in Proportion Employed in Year After and Year Before Randomization (Percentage Points)</b>				
Impact	25.9***	17.0***	21.1**	10.0
p-Value	<0.001	0.008	0.018	0.356
<b>Difference Between SER Earnings in Year After and Year Before Randomization (Dollars)</b>				
Impact	1,209***	-455	222	-751
p-Value	0.002	0.401	0.734	0.290
<b>Difference Between SER Earnings in Year After and Two Years Before Randomization (Dollars)</b>				
Impact	1,188***	-367	-255	-668
p-Value	0.002	0.504	0.690	0.368
Research Sample Through 2001 (T; C)	301; 271	932; 914	98; 78	251; 225
<b>SSA Data Outcome: Change in Proportion Employed Six Months After and Six Months Before Randomization</b>				
Impact (Percentage Points)	3.8**	2.5	5.1	8.2
p-Value	0.023	0.251	0.312	0.143
Research Sample Through February 2003 (T; C)	545; 497	2,043; 1,745	113; 91	296; 238

Source: Calculations conducted by Mathematica Policy Research, Inc. on SSA administrative and SER data.

Notes: Due to a shorter lag time to receive SSA data than SER data, we were able to include later enrollees for analyses of the SSA data. The SER cohort includes those who were enrolled through December 2001. The SSA cohort includes enrollees through February 2003.

The research sample for the PSM results contained participants enrolled through the date shown and their selected comparison group members. The sample for the random assignment results contained all beneficiaries randomized to the treatment and control groups through the dates shown. Estimates were divided by the participation rate to obtain comparable per-participant estimates.

The participation rate for the New York state project was 32.3 percent. The participation rate for the Buffalo site was 39.0 percent.

C = comparison/control; PSM = propensity score matching; SER = Summary Earnings Record; SSA = Social Security Administration; T = treatment.

\*Impact significantly different from zero at the 0.10 level.

\*\*Impact significantly different from zero at the 0.05 level.

\*\*\*Impact significantly different from zero at the 0.01 level.

therefore decided to compare the experimental and comparison group impact estimates in Buffalo, the other New York site. We present these results for the benefits counseling-only group and the benefits counseling and employment services group in Table IV.1 and Table IV.2, respectively. As the tables show, the impact estimate from the comparison group for Buffalo is close to the random assignment impact estimate for the employment rate for the benefits counseling only-group: 8 pp ( $p = 0.29$ ) for the comparison group, compared with 5 pp ( $p = 0.68$ ) for the random assignment model. For the benefits counseling and employment services group, however, the comparison group design overestimates the impact on employment rates: 21 pp ( $p = 0.02$ ), compared with 10 pp ( $p = 0.36$ ) for the random assignment model.

Impact estimates based on the propensity score comparison groups for Buffalo still overestimate impacts on earnings. For the benefits counseling-only group, as shown in Table IV.1, the estimates derived from the comparison group show positive, and sometimes significant, impacts on earnings (\$673 [ $p = 0.2$ ] to \$1,163 [ $p = 0.03$ ]), whereas the experimental estimate predicts negative, nonsignificant impacts on earnings (about  $-\$450$  [ $p = 0.5$ ]). For the benefits counseling and employment services group, as shown in Table IV.2, both the experimental and comparison group estimates show nonsignificant impacts on earnings. One of the comparison group estimates predicts positive earnings, but the estimates are not significant.

**New Hampshire.** The results for the New Hampshire state project suggested that the comparison groups did a poor job approximating impacts from the experimental design for employment and earnings outcomes (Table IV.3). In particular, the random assignment impact estimates suggest that the project *decreased* employment rates for both SSI-concurrent participants and SSDI-only participants ( $-30$  pp for each group [ $p = 0.07$  and  $p = 0.02$ , respectively]), but the comparison group estimate does not show an effect ( $-4$  pp [ $p = 0.82$ ] and  $17$  pp [ $p = 0.25$ ], respectively, for SSI-concurrent participants and SSDI-only participants).

TABLE IV.3

PER-PARTICIPANT IMPACT ESTIMATES, BY COMPARISON GROUP SELECTION METHOD:  
NEW HAMPSHIRE SSI-CONCURRENT AND SSDI-ONLY

	SSI-Concurrent		SSDI-Only	
	PSM	Random Assignment	PSM	Random Assignment
<b>SER Outcomes</b>				
<b>Change in Proportion Employed in Year After and Year Before Randomization (Percentage Points)</b>				
Impact	-4.1	-29.5*	16.7	-29.6**
p-Value	0.818	0.07	0.249	0.02
<b>Difference Between SER Earnings in Year After and Year Before Randomization (Dollars)</b>				
Impact	3,942***	-709	339	-1,633**
p-Value	0.009	0.51	0.694	0.05
<b>Difference Between SER Earnings in Year After and Two Years Before Randomization (Dollars)</b>				
Impact	5,620***	-597	2,166**	-512
p-Value	0.001	0.53	0.047	0.67
Research Sample Through 2001 (T; C)	22; 19	22; 27	35; 34	35; 29
<b>SSA Data Outcome: Change in Proportion Employed in Six Months After and Six Months Before Randomization</b>				
Impact (Percentage Points)	24.2***	-1.8		
p-Value	0.008	0.81		n.a. <sup>a</sup>
Research Sample Through February 2003 (T; C)	31; 27	31; 41		

Source: Calculations conducted by Mathematica Policy Research, Inc. on SSA administrative and SER data.

Notes: Due to a shorter lag time to receive SSA data than SER data, we were able to include later enrollees for analyses of the SSA data. The SER cohort includes those who were enrolled through December 2001. The SSA cohort includes enrollees through February 2003.

The research sample for the PSM results contained participants enrolled through the date shown and their selected comparison group members. The sample for the random assignment results contained all beneficiaries randomized to the treatment and control groups through the dates shown. Estimates were divided by the participation rate to obtain comparable per-participant estimates.

New Hampshire enrolled people who had already expressed an interest, making all enrollees participants.

<sup>a</sup>SSA earnings and employment information were not available for SSDI-only beneficiaries.

C = comparison/control; n.a. = not available; PSM = propensity score matching; SER = Summary Earnings Record; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income; SSA = Social Security Administration; T = treatment.

\*Impact significantly different from zero at the 0.10 level.

\*\*Impact significantly different from zero at the 0.05 level.

\*\*\*Impact significantly different from zero at the 0.01 level.



Results for the impact comparing earnings for the year after randomization and the two years before randomization were especially worrisome. We found no effect on the change in earnings when using random assignment ( $-\$597$  [ $p = 0.5$ ] for SSI-concurrent participants and  $-\$512$  [ $p = 0.7$ ] for SSDI-only participants) but found a very large, statistically significant effect when using the propensity score comparison groups ( $\$5,620$  [ $p < 0.01$ ] and  $\$2,166$  [ $p = 0.05$ ], respectively, for SSI-concurrent participants and SSDI-only participants). Note, however, that the sample sizes were small, with only 22 participants in the SSI-concurrent group, and 35 in the SSDI-only group. When using only the cohort randomized through February 2003 and only SSA data, the propensity score comparison group estimated positive and statistically significant impacts on the proportion employed for SSI-concurrent beneficiaries. However, the randomized design model indicated the impacts were negative and nonsignificant.

**Oklahoma.** As Table IV.4 shows, the estimates using a comparison group came close to approximating impacts on the employment rate: 11 pp ( $p = 0.01$ ) for the comparison group, compared with 18 pp ( $p = 0.15$ ), for the random assignment model. However, the comparison approach overestimated the impact by finding a statistically significant effect, whereas random assignment finds no effect. With respect to impacts on SER earnings, examination of the differences in earnings for the year after and the year before randomization shows that the comparison group predicts the wrong sign, but that neither of the estimates are statistically significant, so that both random assignment and PSM suggest no impact.

### C. CONCLUSIONS

When SSA asked Mathematica Policy Research, Inc. to propose nonexperimental methods to evaluate the state projects that had chosen not to use random assignment, PSM was the most promising nonexperimental method available. Since publication of the article by Dehejia and Wahba (1999), several studies have critiqued the PSM specifically and, more generally, have

TABLE IV.4

PER-PARTICIPANT IMPACT ESTIMATES, BY COMPARISON GROUP SELECTION METHOD:  
OKLAHOMA SSI-CONCURRENT

	PSM	Random Assignment
<b>SER Outcomes</b>		
<b>Change in Proportion Employed in Year After and Year Before Randomization (Percentage Points)</b>		
Impact	10.6***	17.0
p-Value	0.005	0.152
<b>Difference Between SER Earnings in Year After and Year Before Randomization (Dollars)</b>		
Impact	-75	451
p-Value	0.715	0.448
<b>Difference Between SER Earnings in Year After and Two Years Before Randomization (Dollars)</b>		
Impact	59	43
p-Value	0.764	0.941
Research Sample Through 2001 (T; C)	314; 244	1,440; 256
<b>SSA Data Outcome: Change in Proportion Employed in Six Months After and Six Months Before Randomization</b>		
Impact (Percentage Points)	0.1	5.5
p-Value	0.969	0.170
Research Sample Through February 2003 (T; C)	314; 314	1,440; 256

Source: Calculations conducted by Mathematica Policy Research, Inc. on SSA administrative and SER data.

Notes: Due to a shorter lag time to receive SSA data than SER data, we were able to include later enrollees for analyses of the SSA data. The SER cohort includes those who were enrolled through December 2001. The SSA cohort includes enrollees through February 2003.

The research sample for the PSM results contained participants enrolled through the date shown and their selected comparison group members. The sample for the random assignment results contained all beneficiaries randomized to the treatment and control groups through the dates shown. Estimates were divided by the participation rate to obtain comparable per-participant estimates.

The participation rate for the Oklahoma SSI group was 21.8 percent.

C = comparison/control; PSM = propensity score matching; SER = Summary Earnings Record; SSI = Supplemental Security Income; SSA = Social Security Administration; T = treatment.

\*Impact significantly different from zero at the 0.10 level.  
 \*\*Impact significantly different from zero at the 0.05 level.  
 \*\*\*Impact significantly different from zero at the 0.01 level.

underscored the difficulty of identifying nonexperimental methods that can accurately measure impacts consistently across different settings. Wilde and Hollister (2002) found that PSM did not reliably replicate experimental findings in the context of a program to boost student achievement by reducing class size. They found that, “in 35 to 45 percent of the 11 cases where we had used propensity score matching for the nonexperimental estimate, it would have led to the ‘wrong decision,’ i.e., a decision about whether to invest which was different from the decision based on the experimental estimates.” Glazerman et al. (2003) reexamined the results of 12 case studies intended to replicate impact estimates from an experimental evaluation by using nonexperimental methods. They found that the nonexperimental methods sometimes came close to replicating experimentally derived results, but often produced estimates that differed by policy-relevant margins. Agodini and Dynarski (2004) found results that similarly questioned the use of nonexperimental methods to estimate program impacts. They used a multisite experimental evaluation of dropout prevention programs to test whether nonexperimental methods, including OLS regression models, PSM methods, and fixed-effects models, produced estimates comparable to the experimental estimates. They found “only scattered instances” in which the nonexperimental methods replicated the experimental methods. Smith and Todd (2005) refuted the findings of Dehejia and Wahba by showing that PSM could not generally approximate experimental estimates. They found that PSM did not approximate the experimental results when they used slightly different samples or sets of variables. This sensitivity to sample and model specification demonstrates that nonexperimental methods can *sometimes* give accurate estimates of program impacts, but that researchers cannot know a priori when, and under which circumstances, they will do so.

Despite the promise that PSM held for the evaluation of the State Partnership Initiative, the results presented in this chapter are consistent with the recent literature critiquing PSM. Our

results indicate that, despite matching on hundreds of variables, having large pools of people from which to choose the comparison groups, and conducting multiple tests of the process, the comparison groups selected through PSM cannot be used to reliably estimate the impacts of the state projects. The estimates derived from comparison groups identified with PSM appear to overestimate the impacts of the state projects on employment. They also typically overstate the impacts of the state projects on earnings relative to the estimates derived from an experimental design. For both outcomes, the comparison group approach would suggest—incorrectly—that the three projects boosted earnings, when they did not in fact do so. These results also suggest that the comparison groups selected by the state projects for their own evaluations are likely to overstate impacts in important policy-relevant ways.

Based on the findings of these validity tests, we decided not to use the PSM comparison groups that we had selected for the remaining eight state projects to estimate impacts. Our findings emphasize the difficulty of using nonexperimental methods to evaluate voluntary programs, where the programs' recruiting strategies and individuals' choices of whether to volunteer for the program are difficult to approximate using administrative data.

## **V. ESTIMATED IMPACTS OF SPI PROJECTS THAT USED RANDOMIZED DESIGNS**

The previous chapter compared estimates using the comparison groups chosen with propensity score matching (PSM) with the estimates using comparison groups chosen using random assignment. PSM was the most promising nonexperimental approach to estimating project impacts, but we ultimately concluded that PSM produces inaccurate estimates of project effects. We had large pools of beneficiaries who constituted potential comparison group members; chose comparison group members that were well matched to participants on nearly 250 characteristics, including preenrollment values of the outcomes (described in Chapter III); and selected groups who passed multiple statistical tests. Even so, however, the validity tests that we conducted indicated that the nonexperimental matching method was not able to provide reliable estimates of program effects. As a result, impacts cannot reliably be estimated for the eight state projects that did not use randomized designs. This chapter therefore focuses on the estimated impacts in New Hampshire, New York, and Oklahoma, the three state projects that did use randomized designs. Because experimental methods are widely regarded as the benchmark for estimating the effect of an intervention, we can confidently estimate program effects for those projects. In Section A of this chapter, we provide an overview of the interventions tested in the three state projects. Section B presents our findings, and Section C contains a summary and discussion.

To summarize the findings, the results from the three state projects that used randomized designs indicate that benefits counseling and employment services increased the proportion of beneficiaries who worked during the year after the randomization year relative to the year before randomization by 9 to 17 percentage points when compared with results for the control groups in

two states. However, in one state project, the proportion employed decreased by 30 percentage points. The impacts on earnings during this period were disappointing, as the interventions had either no effect or a *negative* and statistically significant effect on the annual earnings of participants ranging from \$1,080 to \$1,633.

## **A. THE INTERVENTIONS**

The three state projects that used randomized designs offered four different intervention packages. New York offered two separate intervention packages to beneficiaries receiving Supplemental Security Income who had a mental illness. The first package provided benefits counseling and tested changes to SSI regulations that allowed SSI beneficiaries who worked to retain and save more money. The second package provided the same intervention as did the first one and added employment services to help people to find, apply for, and maintain work. Unfortunately, New York did not collect data documenting the hours of project services that it provided. Oklahoma offered participants who had a mental illness, received SSI, and were not employed at intake a voucher to be used to obtain services of their own choosing. Through March 2002, participants who used the vouchers received an average of 44 hours of services, or 4 hours per person per enrolled month. All participants received benefits counseling (averaging 10 hours per month) and job services through the vouchers (averaging 5 hours). More than three-quarters of participants received case management (averaging 7 hours). Fewer than one-quarter each received supported employment, placement assistance, situational assessment, job training, psychosocial rehabilitation, job accommodations, or transportation assistance. New Hampshire provided SSI and Social Security Disability Insurance (SSDI) beneficiaries with choice of and control over their vocational services through the assistance of a service resource consultant. Participants who completed the resource planning components of the intervention became eligible to use funds that might otherwise have been available to them through social

service agencies, such as the state’s vocational rehabilitation (VR) agency. The funds were placed in an Individual Career Account and could be accessed through a fiscal intermediary. The account allowed the participant, rather than the agencies, to direct vocational spending. The treatment group received an average of 15 hours of benefits counseling and 8 hours of case management.

The control groups in New York and Oklahoma had access to the usual package of services and supports available in their communities. In addition to the usual services available in the community, the New Hampshire control group also received an average of 2.5 hours of benefits counseling from the State Partnership Initiative (SPI) project (Peikes and Sarin 2005).

By the end of the follow-up period we observed—the end of the year after the year of randomization—the average time elapsed since the beneficiary began participating varied across the three state projects. (The use of SER calendar year data required us to omit earnings in the year of randomization, because we could not distinguish between pre- and postenrollment earnings.) Because there was a lag between when Oklahoma randomized beneficiaries and when the participants were invited and chose to participate, their participants had been enrolled the shortest period—217 days. Participants in New York’s benefits counseling only and benefits counseling with employment services treatment groups had enrolled an average of 407 and 399 days, respectively, before the end of the follow-up period. Because there was no lag between the time they were randomized and when they began participating, New Hampshire’s treatment group had the longest enrollment time—549 days at the end of the observed follow-up period.

The beneficiaries enrolled in the three state projects were more likely to have a psychiatric disability and were more likely to be receiving SSI only or both SSI and SSDI than was the general population of beneficiaries. Across the three state projects, 74 percent were SSI-only beneficiaries, 24.5 percent were covered by both SSI and SSDI, and 1.4 received only SSDI.

Nationwide, in December 2004, the Social Security Administration (SSA) made payments based on the beneficiary's own disability to 9.8 million people aged 18 to 64 years. Fifty-eight percent received disability payments under the SSDI program only, 29 percent received payments from the SSI program only, and 13 percent received payments from both programs (Social Security Administration 2005a). Most enrollees among the three projects (93.6 percent) had a mental disability. This rate was considerably higher than the rate among SSI and concurrent beneficiaries nationwide. In December 2004, 35 percent had a psychiatric disability (Social Security Administration 2005b).

## **B. FINDINGS**

Tables V.1 and V.2 present regression-adjusted difference-in-differences results. Whereas the tables show both overall impacts and per-participant impacts, the text focuses on per-participant impacts. Appendix Tables D.1 through D.4 contain complete state-specific statistics, including the unadjusted pre- and postrandomization values of the outcomes. Appendix Table D.5 reports the minimum detectable differences that the evaluation is able to detect with 90 percent significance and 80 percent power (two-sided tests).

**New York Benefits Counseling-Only Component.** *The results from New York's benefit counseling-only intervention suggest that the intervention did not increase employment and that it had a significant, negative effect on the change in earnings for the treatment group relative to the control group.*

New York served SSI beneficiaries in New York City and in Buffalo who had a mental illness. Overall, we observed no statistically significant effect on the proportion of participants who worked, whether measured over the year after the calendar year of randomization relative to the year before, using Summary Earnings Record (SER) data, or whether measured during the six months after the month of randomization relative to the six months before, using SSA data.



TABLE V.1

REGRESSION-ADJUSTED DIFFERENCE-IN-DIFFERENCES IMPACT ESTIMATES:  
NEW YORK (RANDOM ASSIGNMENT)

	All—SSI-Concurrent		Buffalo Site—SSI-Concurrent	
	Benefits Counseling Only	Benefits Counseling and Employment Services	Benefits Counseling Only	Benefits Counseling and Employment Services
<b>SER Outcomes</b>				
<b>Employment in Year After Randomization Year Relative to Year Before (Percentage Points)</b>				
Overall Impact	2.6	5.5	1.7	3.9
Per-Participant Impact	8.8	17.0***	4.6	10.0
p-Value	0.19	0.01	0.68	0.36
<b>Earnings in Year After Randomization Year Relative to Two Years Before (Dollars)</b>				
Overall Impact	-343**	-118	-166	-261
Per-Participant Impact	-1,161**	-367	-448	-668
p-Value	0.05	0.50	0.56	0.37
<b>Earnings in Year After Randomization Year Relative to Year Before (Dollars)</b>				
Overall Impact	-319*	-147	-175	293
Per-Participant Impact	-1,080*	-455	-473	-751
p-Value	0.06	0.40	0.53	0.29
Number Randomized Through 2001 (T; C)	937; 914	932; 914	259; 225	251; 225
<b>SSA Data Outcome: Employment in Six Months After Randomization Relative to Six Months Before</b>				
Overall Impact	0.0	0.8	2.2	3.2
Per-Participant Impact	0.0	2.5	5.9	8.2
p-Value	0.97	0.25	0.33	0.14
Number Randomized Through February 2003 (T; C)	2,215; 1,745	2,043; 1,745	319; 238	296; 238

Source: Calculations conducted by Mathematica Policy Research, Inc. on SSA administrative and SER data.

Notes: Due to a shorter lag time to receive SSA data than SER data, we were able to include later enrollees for analyses of the SSA data. The SER cohort includes those who were enrolled through December 2001. The SSA cohort includes enrollees through February 2003.

The participation rate for the benefits counseling only intervention was 29.6 percent overall and 37.1 percent in the Buffalo site. The participation rate for the benefits counseling and employment services intervention was 32.3 percent overall and 39.0 percent in the Buffalo site.

C = comparison/control; SER = Summary Earnings Record; SSA = Social Security Administration; SSI = Supplemental Security Income; T = treatment.

\*Impact significantly different from zero at the 0.10 level.

\*\*Impact significantly different from zero at the 0.05 level.

\*\*\*Impact significantly different from zero at the 0.01 level.

TABLE V.2

REGRESSION-ADJUSTED DIFFERENCE-IN-DIFFERENCES IMPACT ESTIMATES:  
NEW HAMPSHIRE AND OKLAHOMA (RANDOM ASSIGNMENT)

	New Hampshire		Oklahoma
	SSI-Concurrent	SSDI-Only	SSI-Concurrent
<b>SER Outcomes</b>			
<b>Employment in Year After Randomization Year Relative to Year Before (Percentage Points)</b>			
Overall Impact	-29.5*	-29.6**	3.7
Per-Participant Impact	-29.5*	-29.6**	17.0
p-Value	0.07	0.02	0.15
<b>Earnings in Year After Randomization Year Relative to Two Years Before (Dollars)</b>			
Overall Impact	-597	-512	9
Per-Participant Impact	-597	-512	43
p-Value	0.53	0.67	0.94
<b>Earnings in Year After Randomization Year Relative to Year Before (Dollars)</b>			
Overall Impact	-709	-1,633**	98
Per-Participant Impact	-709	-1,633**	451
p-Value	0.51	0.05	0.45
Number Randomized Through 2001 (T; C)	22; 27	35; 29	1,440; 256
<b>SSA Data Outcome: Employment in Six Months After Randomization Relative to Six Months Before</b>			
Overall Impact	-1.8		1.2
Per-Participant Impact	-1.8		5.5
p-Value	0.81	n.a.	0.17
Number Randomized Through February 2003 (T; C) <sup>a</sup>	31; 33		1,440; 256

Source: Calculations conducted by Mathematica Policy Research, Inc. on SSA administrative and SER data.

Notes: Due to a shorter lag time to receive SSA data than SER data, we were able to include later enrollees for analyses of the SSA data. The SER cohort includes those who were enrolled through December 2001. The SSA cohort includes enrollees through February 2003.

The participation rate for the Oklahoma SSI group was 21.8 percent. The participation rate for both New Hampshire groups was 100 percent.

C = comparison/control; n.a. = not available; SER = Summary Earnings Record; SSA = Social Security Administration; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income; T = treatment.

\*Impact significantly different from zero at the 0.10 level.

\*\*Impact significantly different from zero at the 0.05 level.

\*\*\*Impact significantly different from zero at the 0.01 level.

The intervention appears to have reduced the earnings of the treatment group relative to those of the control group. Our examination of the change in earnings during the year after the randomization year relative to one year or two years before the randomization year showed that the annual earnings of participants *fell* by between \$1,080 and \$1,161 relative to those of control group members, depending on the prerandomization period used. These negative impacts are statistically significant at p-values of 0.06 when the prerandomization period is the first year before randomization and of 0.05, when the prerandomization period is the average over the first two years before randomization (Table V.1). Although the treatment group's earnings during the year after randomization were greater than they were during both the first year and first two years before randomization (an increase to \$1,259 from \$1,063 and from \$932, respectively, for the first year and first two years; see Appendix Table D.1), the control group's annual earnings rose by an even larger amount, resulting in the negative impact associated with the intervention.

**New York—Benefit Counseling plus Employment Services.** *The results from New York's benefit counseling plus employment services intervention suggest that the proportion of participants who worked increased substantially. However, we found no corresponding effect on earnings.*

This intervention increased the proportion of participants who worked over time, relative to the intervention's control group, by a sizable proportion. Comparison of the proportion of treatment and control group members who were working during the year after randomization with the proportion working during the year before randomization shows an impact of 17 percentage points that is significant at the  $p = 0.01$  level (Table V.1). When SSA data comparing the treatment and control groups' proportion employed during the six months after randomization with the six months before randomization are used, the size of the impact decreases, and it is not statistically significant (2.5 percentage points;  $p = 0.25$ ). Those results

suggest that the impact did not occur until more than six months after randomization. This finding is not surprising, given that an average of about three months passed between the beneficiaries' randomization to New York's project and the start of service receipt. Comparison of the intervention's impact on earnings shows that the increase in the number of participants who were working did not translate into increased earnings. In fact, compared with earnings of the control group, the treatment group's earnings fell slightly (by \$367 and \$455 per year, depending on the pre-period), but the net change was not statistically significant (p-values of 0.50 and 0.40, respectively, for the two years before randomization and the year before randomization).

**New York—Buffalo Site.** *New York's Buffalo interventions (both benefits counseling only and benefit counseling and employment services) had a positive, but statistically insignificant, effect on the proportion of participants who worked, but they also had a negative, insignificant effect on earnings. The sample sizes may be too small to enable us to make firm conclusions about the effects of the intervention. The results were similar in direction to those of the state project as a whole.*

We present the findings for Buffalo, one of New York's two sites, separately because personal communications with state project staff suggested that the intervention was more effectively implemented in Buffalo than in New York City (see Table V.1 and Appendix Table D.2 for the findings on the Buffalo site). It is possible that the intervention increased the proportion of participants in the *benefits counseling-only group* who worked after the intervention by 4.6 to 5.9 percentage points (depending on the pre-period and follow-up period), relative to the proportion of the control group who worked. However, those results are not statistically significant. (The lack of significance may be due to small sample sizes. The minimum impact that we would expect to detect with 90 percent confidence and 80 percent

power is a change of 6.9 percentage points; Appendix Table D.5.) In addition, the intervention does not appear to have had a statistically significant effect on earnings. Specifically, the demonstration appears to have decreased earnings slightly for the treatment group relative to the control group over time (by \$448 and \$473 per year), but the net changes were not statistically significant (p-values of 0.56 and 0.53, for the year after randomization relative to the first two years before randomization and for the year after randomization relative to the first year before randomization, respectively).

The results for the Buffalo site for the *benefit counseling plus employment services* component were similar to those for the benefits counseling-only group. Although impact estimates using both the SER data and the SSA data suggest that the intervention may have increased the proportion of participants who worked—by 10.0 percentage points during the year after randomization and by 8.2 percentage points during the six months after randomization—these results are not statistically significant (p-values of 0.36 and 0.14, respectively). In addition, as with the benefits counseling-only group, the intervention does not seem to have increased earnings of the treatment group relative to those of the control group; in fact, it may have decreased them slightly (between \$668 to \$751). However, these results also were not statistically significant (p = 0.37 and 0.29, for the year after randomization relative to the first two years before randomization and for the year after randomization relative to the first year before randomization, respectively).

**New Hampshire.** *The results for New Hampshire suggest that benefit counseling may reduce both employment and earnings, but we interpret the results with caution due to small sample sizes.*

New Hampshire served beneficiaries living in the cities of Derry, Keene, Manchester, or Portsmouth and who had any diagnosis. Results for both SSI-concurrent beneficiaries and SSDI-

only beneficiaries are presented in Table V.2 and Appendix Table D.4. For SSI beneficiaries, the intervention appears to have had a large, negative impact on employment. When SER data for the year after the randomization year relative to the year before the randomization year were used, the percentage of participants employed fell by 29.5 percentage points (marginally significant at  $p = 0.07$ ). The effect was small and not statistically significant when SSA data were used to examine the change in employment during the six months after the month of randomization relative to the six months before randomization (employment fell by 1.8 percentage points). Likewise, the intervention does not appear to have had a positive effect on the earnings of the treatment group relative to those of the control group. The impact of the demonstration appears to have reduced earnings slightly for the treatment group relative to the control group (between \$597 and \$709 per year), but those results were not statistically significant ( $p = 0.53$  for the year after randomization relative to the two years before randomization and 0.51 for the year after randomization relative to the year before randomization).

With respect to SSDI-only beneficiaries, as with the SSI-concurrent group, the intervention appears to have *decreased* the proportion of participants who worked over time, relative to a control group, by a sizable proportion. The proportion employed decreased by 29.6 percentage points ( $p = 0.02$ ) during the year after randomization relative to the year before it. The SSA data necessary to measure employment during the six months after randomization relative to the six months before randomization were not available for SSDI-only beneficiaries. Given the decrease in employment, it is not surprising that the intervention also appears to have reduced the earnings of the treatment group relative to those of the control group, although the result was somewhat sensitive to the pre-randomization period used in the model. Examination of the change in earnings during the year after the randomization year relative to the year before it

shows that the change in participants' earnings was \$1,633 less than the change in control group members' earnings ( $p = 0.05$ ). However, although the change in earnings during the year after the randomization year relative to the average over the two years before randomization remained negative, its magnitude was smaller than the change over the first year after randomization only (\$512 versus \$1,633), and it was not statistically significant ( $p = 0.67$ ). Note that the magnitude and direction of the impact on earnings from the regression-adjusted results contrast with those obtained from the unadjusted results (Appendix Table D.4). The unadjusted results suggest a large increase in earnings for the treatment group relative to the control group, whereas regression adjusting for chance differences in pre-randomization characteristics alters the direction of the impact estimates. Sample sizes may have been too small to confidently determine the intervention's effect on earnings in New Hampshire.

**Oklahoma—SSI Group.** *Oklahoma's intervention had a positive, but statistically insignificant, effect on the proportion of participants who worked, and it had no effect on earnings.*

Oklahoma offered vouchers to the treatment group to obtain employment-related services of their own choosing. Oklahoma served beneficiaries who had mental illness and who were unemployed at the time of randomization. Although its demonstration was not limited to SSI beneficiaries (SSI-only or concurrent), the demonstration served a small number of SSDI-only beneficiaries, so the results for SSI beneficiaries only are presented (Tables V.2 and D.3). The results suggest that Oklahoma's demonstration may have increased the proportion of participants who worked over time relative to the proportion of control group members who worked, and by a sizable amount; however, the results are not statistically significant. Using SER data to measure employment during the year after the year of randomization relative to the year before it shows an impact on employment of 17.0 percentage points ( $p = 0.15$ ). Given the sample size,

the intervention would have had to increase participants' employment by 25 percentage points for the evaluation to detect the increase (Appendix Table D.5). Similarly, the intervention resulted in an increase in employment of 5.5 percentage points ( $p = 0.17$ ) when using SSA data to measure employment during the six months after the month of randomization relative to the six months before randomization. However, the intervention did not have an effect on the earnings of treatment group members relative to those of control group members. The change in earnings during the year after the randomization calendar year relative to the year or two years before is not statistically significant (\$43 [ $p = 0.94$ ] and \$451 [ $p = 0.45$ ], respectively). Thus, even if the demonstration had been able to increase employment in the treatment group relative to employment in the control group, the increase would not have resulted in a corresponding increase in earnings.

**Sensitivity Tests.** We conducted additional analyses using Detailed Earnings Record (DER) data. Like the SER, the DER is an extract from SSA's Master Earnings File of nearly all workers in the United States. Unlike the SER, however, the DER contains earnings from state government employment and self-employment. We ran sensitivity analyses with the DER to determine whether the impacts changed when income from those other types of employment were included as earnings. The impact estimates were not sensitive to that change.

## C. SUMMARY AND DISCUSSION

The previous chapter compared estimates using the comparison groups selected using propensity score matching with the randomly assigned control groups. Despite having large pools of beneficiaries from which to select the comparison groups, choosing comparison group members that were well matched to participants on nearly 250 characteristics, including preenrollment values of the outcomes, and choosing comparison groups that passed multiple statistical tests (described in Chapter III), the validity tests that we conducted indicated that the



nonexperimental propensity score matching method cannot provide reliable estimates of program effects. As a result, impacts cannot reliably be estimated for the eight state projects that did not use randomized designs.

The dramatic difference in the direction of results from the nonexperimental and experimental methods underscores the importance of testing large policy changes that affect the wellbeing of beneficiaries using randomized designs. Results from PSM incorrectly suggested that the interventions increased earnings by between \$970 and \$5,600 a year, whereas random assignment showed that the interventions actually had no effects or negative effects on earnings.

The beneficiaries enrolled in the three state projects were more likely to have a psychiatric disability and were more likely to be receiving SSI only or both SSI and SSDI than was the general population of beneficiaries. Across the three state projects, 74 percent were SSI-only beneficiaries, 24.5 percent were covered by both SSI and SSDI, and 1.4 received only SSDI. Nationwide, in December 2004, SSA made payments based on the beneficiary's own disability to 9.8 million people aged 18 to 64 years. Fifty-eight percent received disability payments under the SSDI program only, 29 percent received payments from the SSI program only, and 13 percent received payments from both programs (Social Security Administration 2005a). Most enrollees among the three projects (93.6 percent) had a mental disability. This rate was considerably higher than the rate among SSI and concurrent beneficiaries nationwide. In December 2004, 35 percent had a psychiatric disability (Social Security Administration 2005b).

The estimates for the three projects that used randomized designs show that two projects increased the proportion of participants who worked, one decreased the proportion, and all three had no effects or had *negative* effects on earnings relative to randomly assigned control groups. The results for New York and Oklahoma suggest that the SPI interventions may have increased the proportion of SSI participants who worked during the year after the year of randomization

relative to the year before randomization by 8.8 to 17.0 percentage points (compared with randomly assigned control groups). The results for New Hampshire, which had small samples, suggest that employment may actually have decreased by as much as one-third (Table V.3).

Notably, the positive impacts on employment for participants in New York and Oklahoma occurred because, although both the treatment groups and the control groups experienced declines in employment over time, the decline in the employment of the control groups was even larger than the decline for the treatment groups. The findings demonstrate the challenges in maintaining employment for beneficiaries with mental illness, the groups targeted by those two projects.

TABLE V.3  
IMPACTS ON EMPLOYMENT AND EARNINGS DURING THE YEAR AFTER THE RANDOMIZATION YEAR  
RELATIVE TO THE YEAR BEFORE RANDOMIZATION, PER PARTICIPANT

	Number Randomized Through 2001		Employment (Percentage Points)	p-Value	Earnings	p-Value
	Treatment Group	Control Group				
New York—SSI						
Benefits counseling only	937	914	8.8	0.19	–\$1,080	*
Benefits counseling and employment services	932	914	17.0	***	–\$455	0.06
New Hampshire						
SSI	22	27	–29.5	*	–\$709	0.51
SSDI only	35	29	–29.6	**	–\$1,633	**
Oklahoma						
SSI	1,440	256	17.0	0.15	\$451	0.45

Source: Social Security Administration administrative data and Summary Earnings Record data.

Note: Impacts are regression-adjusted.

SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

\*Impact significantly different from zero at the 0.10 level.

\*\*Impact significantly different from zero at the 0.05 level.

\*\*\*Impact significantly different from zero at the 0.01 level.

The findings for New York also suggest that the combination of employment services and benefits counseling more effectively increases employment rates than does benefits counseling alone. The impact on employment during the year after randomization was nearly double for participants who received both services relative to participants who received only benefits counseling (8.8 versus 17.0 percentage points).

Across the three projects, the interventions either had no effect or had a *negative* and statistically significant effect on annual earnings per participant of between \$1,080 and \$1,633 relative to the year before randomization. Notably, the reductions in earnings in New York's benefits counseling-only group occurred because, although both the treatment group and the control group experienced increases in earnings during the year after random assignment, the increase was greater for the control group.

Caution must be used when interpreting these findings because they are based on participant followup for only the year after the calendar year of randomization. By the end of this period, the average time elapsed since the beneficiary began participating was 217 days in Oklahoma, 407 days for New York's benefits counseling only intervention, 399 days for New York's benefits counseling with employment services intervention, and 549 days in New Hampshire. During the relatively short period, beneficiaries who received the intervention may have been more likely than beneficiaries who did not receive the intervention to spend time improving their human capital through education or training, rather than spending their time seeking employment or increasing the amount of time that they worked. In addition, state project staff reported that changing participants' attitudes about work would take time. Finally, Thornton et al. (2005) found that beneficiaries must receive VR services for an average of 26 months (780 days) before a successful closure occurs. We therefore recommend observing a longer follow-up period to determine whether annual earning measures increase to reflect any short-term human capital

investments or changes in attitudes. A finding that the impact of participation on earnings continued to be zero or negative would indicate that benefits counseling, as implemented in the three state projects that used randomized designs, may have no effect or lower the earnings of participants.

The short-term results of this research are both promising and disappointing. Clearly, two of the projects increased employment rates. Obtaining or maintaining work represents a promising change in behavior for beneficiaries with little labor force experience. The findings in this chapter raise two questions. First, why did both employment and earnings decline in New Hampshire? Second, if more participants worked in New York and Oklahoma over time (relative to control groups), why did earnings decline in New York and remain statistically similar in Oklahoma? Were individuals recruited into this SSA employment focused demonstration without the expectation that they would seek employment or increased employment? Did the projects somehow track participants into lower-paying jobs than the participants would have otherwise obtained? Did they raise expectations too much or too quickly, leading participants to take inappropriate jobs that they were likely to quit sooner than they otherwise would have? Did benefits counseling encourage beneficiaries who already were working to limit their earnings as the beneficiaries became increasingly aware of potential losses in benefits? Is it possible that the beneficiaries received incorrect or incomplete benefits counseling information? Are other policy changes needed to complement benefits counseling and employment services to reduce barriers to employment? Understanding what led to the lack of favorable impacts on short-term earnings in the three state projects warrants additional investigation and could guide policies that would help to translate increased employment into higher earnings.

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**APPENDIX A**  
**DESCRIPTION OF THE WAIVERS**



Four state projects (California, New York, Vermont, and Wisconsin) tested four changes to Supplemental Security Income (SSI) regulations to encourage beneficiaries to work:

1. ***Three-for-Four Earnings Deductions.*** Under this work incentive, the Social Security Administration (SSA) excluded the first \$80 of a project participant's gross monthly earned income plus an additional 75 percent of any remaining gross monthly earned income, or an additional \$3 for every \$4 earned. This rule differed from the current rules, under which SSA excludes the first \$80 of monthly earned income plus an additional 50 percent of any remaining gross monthly earned income, or an additional \$2 for every \$4 earned. Vermont did not test this provision.
2. ***Unearned Income Related to Work Activity Treated as Earned Income.*** The four projects tested the treatment of certain types of temporary unearned income related to work activity (unemployment insurance benefits, worker's compensation benefits, state disability benefits, and disability-related benefits paid through private insurance plans), in the same manner as earned income was treated under the Three-for-Four Earnings Deductions test, for determining an SSI recipient's countable income. For project participants, SSA excluded the first \$65 per month of certain types of unearned income that resulted from work activity, plus 75 percent of the rest of that unearned income during a month. This rule differed from current SSI rules, under which SSA excludes only the first \$20 of unearned income during a month.
3. ***Independence Account.*** The four projects also tested Independence Accounts to allow participants to exclude additional resources. Under this waiver, SSA allowed project participants to maintain an Independence Account that permitted the participants to maintain assets above the current \$2,000 limit, and to save as much as half their annual earnings.
4. ***Medical Continuing Disability Reviews (CDRs).*** The four projects tested the suspension of medical CDRs for SSI-only recipients who were participating in the State Partnership Initiative projects and who were maintaining "medical improvement possible" or "medical improvement not expected" diaries.



## **APPENDIX B**

### **SELECTION OF COMPARISON AREAS**



The goal of the comparison area selection process was to control for environmental factors that might have influenced the employment decisions of Supplemental Security Income (SSI) and Social Security Disability Insurance (SSDI) beneficiaries. As discussed in Chapter II, after the comparison areas were selected, we used an individual matching process and several analysis techniques to control for a wide range of individual characteristics when selecting beneficiaries within the selected comparison areas.

The comparison area selection process used the following steps, discussed in more detail here and in Agodini et al. (2002a, 2000b):

- ***Identify the Areas in Which the State Projects Offered Services*** (the demonstration areas). Generally, services were offered either in a few counties or statewide.
- ***Identify the Broad Areas from Which the Comparison Counties Would Be Selected.*** For projects that offered services in only a few counties or cities, we typically selected comparison counties from the balance of the state. For projects with statewide services, we selected comparison counties from nearby states.
- ***Select Similar Comparison Areas.*** We identified comparison area counties that most closely resembled the demonstration counties in terms of 13 county-level characteristics that affect the employment of beneficiaries with disabilities. The characteristics include population characteristics (such as poverty rate and racial mix), physical characteristics (such as population density and availability of public transportation), and economic characteristics (such as the unemployment rate, the roles of farming and manufacturing in the local economy, and the county-specific employment rate of SSI beneficiaries before the start of a state's project).
- ***Ask State Project Staff to Review the Preliminary List.*** Project staff were asked to delete counties whose service environments or employment initiatives would have created substantially different employment environments from those in the demonstration counties. This step left a set of comparison counties that were well matched to the demonstration counties, and that appeared reasonable to policymakers within each demonstration state.<sup>1</sup>

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<sup>1</sup> In general, state project staff rejected few of the initial selections.

## **A. DEFINITION OF POTENTIAL COMPARISON AREAS**

State projects were implemented in one of two types of geographic areas: (1) specific cities or counties within a state, or (2) an entire state. For demonstration areas that were specific cities or counties, we generally searched among all nondemonstration counties within the same state to identify those most similar to each of the demonstration counties.<sup>2</sup> For example, to find comparison counties that resembled Kern County, California, we searched among all other California counties (except for the other California demonstration counties) and selected the counties with employment and service environments similar to that of Kern County. In this process, a comparison county could be matched with more than one demonstration county.

For demonstration areas that encompassed an entire state, we searched for comparison counties in nearby states. We also focused on states served by the same Social Security Administration regional office as served the demonstration state. In this way, we expected to control for any regional differences in how SSA procedures are implemented, or in how SSA administrative data are coded. For example, the Wisconsin project served the entire state. We therefore searched for comparison counties in Illinois and Michigan that, like Wisconsin, are also served by SSA's Chicago regional office.

We made two exceptions to the general approach outlined here. One arose in New York, where we had difficulty identifying matches for the New York City site, as that site differed so much from all the other counties in the state. For that site, we used a modified process, working with state project staff to select zip code-level comparison areas from within the city's broader labor market area. The other exception arose in New Hampshire. That state has only 10

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<sup>2</sup> The one exception was in New Mexico, which implemented its project in a set of counties that essentially included all of the highly populated areas of the state. Because that process left no adequate comparison counties within the state, we used the procedure for statewide projects and looked for comparison counties in neighboring states.



counties, so it was impossible to use the general approach, which tries to match counties on 13 characteristics. For New Hampshire, we implemented a modified approach that focused on the balance of the labor market areas that contained the demonstration areas.

## **B. METHODS AND DATA USED TO SELECT PRELIMINARY COMPARISON AREAS**

The initial selection of comparison counties was performed with a nonparametric matching algorithm (Mardia et al. 1979) that identified 5 to 10 potential comparison counties for each county in which a state project offered services. This method assigned a score to each potential comparison county based on the weighted sum of the county's similarity rankings for 13 county-level characteristics that affect employment among SSI beneficiaries.<sup>3</sup> The weights reflect the relative importance of the included variables in explaining employment among SSI beneficiaries. The scale was defined so that the potential comparison areas with the lowest scores were the ones that were most similar to the demonstration area.

In matching counties, we focused on 13 measures that reflect 10 general characteristics of the labor environment faced by SSA beneficiaries. In general, we measured characteristics in June 1999 (or for the 12 months ending in June 1999), approximately the first month of state project enrollment. If a measure was unavailable for June 1999, we used data from the most recent preceding year. Although some state projects (notably California) enrolled a few participants earlier in 1999, it is extremely unlikely that the projects could have had an effect on county-level characteristics before June of that year. The 13 measures used were (1) population density, (2) population growth, (3) unemployment rate, (4) unemployment volatility, (5) total employment, (6) employment growth, (7) percentage of county land in farming, (8) presence of

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<sup>3</sup> We discovered that several of the 13 area characteristics used in the matching were highly correlated. We decided to drop one of any pair of variables that had a correlation coefficient of 0.70 or more, thereby avoiding giving extra weight to a characteristic by including two variables that essentially measure the same thing.

substantial manufacturing, (9) public transportation use, (10) poverty rate, (11) percentage of county population of Hispanic or Latino origin, (12) percentage of county population not white and not of Hispanic or Latino origin, and (13) SSI beneficiary employment rate.<sup>4</sup>

We obtained these data from a wide variety of sources, most of which are publicly available. To measure the SSI beneficiary employment rate in a county, we used tabulations from SSA's Revised Management Information Counts (REMICS) administrative data files. For all other measures, we obtained data from the following government agencies: the U.S. Bureau of the Census, the U.S. Department of Labor's Bureau of Labor Statistics, and the U.S. Department of Agriculture.<sup>5</sup>

We used a matching process to select the 10 most similar comparison counties for each demonstration county in states that ran substate projects; five comparison counties from outside states were selected for each county for projects that operated statewide.<sup>6</sup> The lower number used for the statewide projects reflects the much larger number of demonstration counties in those projects. We selected comparison counties with replacements (the same comparison county could be selected for more than one demonstration county).

### **C. FINAL SELECTION OF COMPARISON AREAS**

The final step in the comparison area selection process was to ask state project staff to review our initial selections. We gave project staff a list of their demonstration counties and the list of the 5 to 10 best matches for each demonstration county. The goal of this review was to pick up policy or environmental differences that could not be measured well with available data.

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<sup>4</sup> "Unemployment volatility" is defined as the difference between the maximum and minimum monthly county unemployment rates observed between July 1998 and June 1999 as a percentage of the minimum rate.

<sup>5</sup> For more information on the data sources used to construct these characteristics, see Agodini et al. (2002a).

<sup>6</sup> In the final selection of comparison areas, we used a maximum of five comparison counties per demonstration county.

If state project staff believed that an area selected by the matching process was not a reasonable one, we dropped that county from the set matched to the associated demonstration county. Oklahoma was the one state in which input from the state project staff supported a modified approach. For the Oklahoma County demonstration area, state project staff reviewed our initial list of statistically matched comparison counties and selected only three. Because the seven other counties were predominately rural, they were not comparable. State project staff suggested that, because the demonstration was limited to northern Oklahoma City, the best match for that site would be southern Oklahoma City. We worked with the state project staff and participants' zip code data to identify an area within Oklahoma County in which the demonstration was not operating.

We used a different approach for New Hampshire and New York. Because of the uniqueness of the demonstration counties in those projects, we selected comparison areas within the labor market area in which demonstration services were offered. In New Hampshire, which concentrated services in specific towns within its counties, project staff helped to identify other areas of the county that could be used to draw the comparison counties. Because New York recruited participants from throughout New York City, there were no zip code areas in the city in which it was clear that beneficiaries had not been at least offered project services. Therefore, project staff helped to identify neighboring counties that would provide a close match in service environment and employment opportunities for people with disabilities. We selected two adjoining counties, Nassau and Westchester, as comparison areas for New York City.<sup>7</sup>

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<sup>7</sup> The modified procedures for New Hampshire and New York were made to be generally consistent with the overall comparison area selection process. That is, the modified process identified the specific areas in which demonstration services were fielded and then tried to identify similar areas from within the remaining parts of the cities or state. The major difference between this process and the one used elsewhere is that the general procedure relies first on statistical matching and then on state project staffs' judgments, whereas the special procedures relied more on discussions with project staff.

The counties selected as potential comparison areas had more than enough SSI and SSDI beneficiaries for us to select comparison beneficiaries. Our goal was to have at least five times as many beneficiaries in the comparison areas as a state project had participants. In fact, the selected comparison areas contained at least 10 times as many beneficiaries as participants, and often more than 100 times as many. For the final list of each of the 11 state project's demonstration and selected comparison areas, see Appendix Tables B.1 through B.11.

TABLE B.1

SPI DEMONSTRATION AND COMPARISON COUNTIES:  
CALIFORNIA

Demonstration Counties	Comparison Counties (All in California)
Kern	Fresno, San Joaquin, Stanislaus
San Mateo	Contra Costa, Napa, Placer, Santa Clara, Sonoma

TABLE B.2

SPI DEMONSTRATION AND COMPARISON COUNTIES:  
IOWA

Demonstration Counties	Comparison Counties (All in Iowa)
Benton	Lucas, Mahaska, Montgomery, Osceola, Webster
Cedar	Hamilton, Kossuth, Page, Poweshiek, Wright
Cerro Gordo	Carroll, Clay, Marshall, Muscatine, Sioux
Floyd	Cass, Emmet, Jackson, Shelby, Winneshiek
Franklin	Clarke, Clayton, Howard, Kossuth, Monroe
Hancock	Boone, Buena Vista, Cherokee, Harrison, Mills
Iowa	Guthrie, Humboldt, Marion, Poweshiek, Wright
Johnson	Boone, Buena Vista, Dallas, Mills, Story
Jones	Guthrie, Harrison, Jackson, Kossuth, Page
Linn	Boone, Jasper, Marion, Marshall, Warren
Mitchell	Cass, Clayton, Crawford, Howard, Shelby
Washington	Cherokee, Dickinson, Guthrie, Harrison, Shelby
Winnebago	Buena Vista, Hamilton, Marshall, Plymouth, Poweshiek
Worth	Keokuk, Kossuth, Montgomery, Osceola, Van Buren

TABLE B.3

SPI DEMONSTRATION AND COMPARISON COUNTIES:  
MINNESOTA

Demonstration Counties	Comparison Counties
Aitkin	Chippewa, MI; Delta, MI; Gladwin, MI; Houghton, MI; Otsego, MI
Anoka	Charlevoix, MI; Grand Traverse, MI; Livingston, MI; Midland, MI
Becker	Adams, IL; Effingham, IL; Mason, MI; Menominee, MI; Saint Clair, MI
Beltrami	Baraga, MI; Charlevoix, MI; Lucas, IA; Presque Isle, MI; Schoolcraft, MI
Benton	De Kalb, IL; Lucas, IA; Muscatine, IL; Richland, IL; Woodford, IL
Big Stone	Adams, IA; Monona, IA
Blue Barth	Jasper, IA; Union, IA
Brown	Cass, IA; Howard, IA; Jo Daviess, IL; Union, IA
Carlton	Adams, IL; Effingham, IL; Lenawee, MI; Menominee, MI; Muskegon, MI
Carver	Jo Daviess, IL; Marion, IA; Warren, IA
Cass	Iosco, MI; Menominee, MI; Roscommon, MI; Sheboygan, MI
Chippewa	Cass, IA; Clayton, IA; Fayette, IA; Howard, IA; Union, IA
Chisago	Bremer, IA; Grand Traverse, MI; Jo Daviess, IL; Marion, IA; Warren, IA
Clay	Dubuque, IA; Lee, IL; Livingston, IL; Page, IA
Clearwater	Franklin, IL; Keweenaw, MI; Montmorency, MI; Saline, IL
Cook	Alger, MI; Fayette, IL; Iron, MI; Leelanau, MI

TABLE B.3 (continued)

Demonstration Counties	Comparison Counties
Cottonwood	Clayton, IA; Cherokee, IA; Fayette, IA; Poweshier, IA; Washington, IL
Crow Wing	Charlevoix, MI; Chickasaw, IA; Grand Traverse, MI; Marion, IA; Otsego, MI
Dakota	Brown, IL; Marion, IA; Warren, IA
Dodge	Bremer, IA; Fayette, IA; Livingston, IL; Page, IA; Poweshiek, IA
Douglas	Dickinson, IA; Howard, IA
Faribault	Clinton, IA; Hardin, IA; Livingston, IL; Wright, IA
Fillmore	Bremer, IA; Chickasaw, IA; Jo Daviess, IL; Monroe, IA; Van Buren, IA
Freeborn	Cherokee, IA; Clarke, IA; Marshall, IA; Union, IA
Goodhue	Dickinson, IA; Guthrie, IA; Marion, IA; Monroe, IA
Grant	Winneshek, IA
Hennepin	Kalamazoo, MI; La Salle, IL; Monroe, MI; Oakland, MI; St. Joseph, MI
Houston	Bremer, IA; Dickinson, IA
Hubbard	Charlevoix, MI; Chickasaw, IA; Grand Traverse, MI; Missaukee, MI; Van Buren, IA
Isanti	Bremer, IA; Chickasaw, IA; Dickinson, IA; Marion, IA; Monroe, IL
Itasca	Alpena, MI; Baraga, MI; Clay, IL; Delta, MI; Dickinson, MI
Jackson	Black Hawk, IA; Hardin, IA; Jefferson, IA; Montgomery, IA; Wapello, IA
Kanabec	Gladwin, MI; Grand Traverse, MI; Jo Daviess, IL; Missaukee, MI
Kandiyohi	Allamakee, IA; Clarke, IA; Crawford, IA; Sioux, IA



TABLE B.3 (continued)

Demonstration Counties	Comparison Counties
Kittson	Mercer, IL
Koochiching	Clay, IL; Delta, MI; Dickinson, MI; Missaukee, MI; Ontonagon, MI
Lac Que Parle	Monona, IA; Van Buren, IA
Lake	Baraga, MI; Davis, IA; Delaware, IA; Schoolcraft, MI; Wayne, IL
Lake of the Woods	Antrim, MI; Buchanan, IA; Saint Clair, MI
Le Sueur	Bremer, IA; Brown, IL; Jo Daviess, IL; Marion, IA; Sanilac, MI
Lincoln	Monroe, IA; Union, IA
Lyon	Crawford, IA; Howard, IA; Sioux, IA
Mahnomen	Decatur, IA; Hamilton, IL; Union, IL
Marshall	Keokuk, IA
Martin	Cass, IA; Humboldt, IA; Sac, IA
McLeod	Clarke, IA; Dickinson, IA; Sioux, IA
Meeker	Allamakee, IA; Clay, IA; Sioux, IA; Union, IA
Mille Lacs	Charlevoix, MI; Delta, MI; Gladwin, MI; Missaukee, MI; Shiawassee, MI
Morrison	Bremer, IA; Chickasaw, IA; Clay, IL; Jo Daviess, IL; Shiawassee, MI
Mower	Howard, IA; Jasper, IA; McDonough, IL
Murray	Chickasaw, IA; Fayette, IA; Guthrie, IA
Nicollet	Jasper, IA; Marion, IA; Plymouth, IA; Union, IA
Nobles	Chickasaw, IA; Clinton, IA; Emmet, IA; Fayette, IA; Marshall, IA
Norman	Lucas, IA
Olmsted	Guthrie, IA; Marion, IA; Warren, IA

TABLE B.3 (*continued*)

Demonstration Counties	Comparison Counties
Otter Tail	Allamakee, IA; Fayette, IA; Jo Daviess, IL; Union, IA
Pennington	Allamakee, IA; Clay, IA; Union, IA
Pine	Baraga, MI; Benzie, MI; Emmet, MI; Roscommon, MI; Schoolcraft, MI
Pipestone	Chickasaw, IA; Clinton, IA; Kossuth, IA; Van Buren, IA
Polk	Clarke, IA; Clinton, IA; Emmet, IA; Fayette, IA; Union, IA
Pope	Chickasaw, IA; Howard, IA; Monroe, IA; Union, IA; Washington, IL
Ramsey	Allegan, MI; Bay, MI; Macomb, MI; Oakland, MI; Polk, IA
Red Lake	Audubon, IA
Redwood	Cass, IA; Howard, IA; Humboldt, IA; Sac, IA
Renville	Fayette, IA; Hardin, IA; Wright, IA; Stark, IL
Rice	Brown, IL; Jo Daviess, IL; Marion, IA; Marshall, IA
Rock	Fayette, IA; Kossuth, IA; Poweshiek, IA; Stark, IL
Roseau	Bremer, IA; Chickasaw, IA; Jo Daviess, IL; Marion, IA; Van Buren, IA
Scott	Grand Traverse, MI; Livingston, MI; Isabella, MI; Sanilac, MI
Sherburne	Charlevoix, MI; Emmet, MI; Lapeer, MI; Midland, MI; Otsego, MI
Sibley	Allamakee, IA; Clarke, IA; Union, IA; Washington, IL
St. Louis	Davis, IA; Keokuk, IA; Lucas, IA; Marquette, MI
Stearns	Bremer, IA; Dubuque, IA; Guthrie, IA; Marion, IA; Page, IA

TABLE B.3 (continued)

Demonstration Counties	Comparison Counties
Steele	Clarke, IA; Jasper, IA; Sioux, IA
Stevens	Clay, IA; Madison, IA; Palo Alto, IA; Sac, IA
Swift	Clinton, IA; Guthrie, IA; Jefferson, IA; Marion, IA; Page, IA
Todd	Jefferson, IA; Jo Daviess, IL; Huron, MI; Shiawassee, MI
Traverse	Christian, IL; Pike, IL; Wayne, IA
Wabasha	Clay, IA; Jasper, IA; Plymouth, IA
Wadena	Alpena, MI; Davis, IA; Huron, MI; Lucas, IA; Richland, IL
Waseca	Bremer, IA; Emmet, IA; Fayette, IA; Page, IA; Washington, IL
Washington	Grand Traverse, MI; Livingston, MI; Marion, IA
Watonwan	De Kalb, IL; Hardin, IA; Montgomery, IA; Warren, IL; Whiteside, IL
Wilkin	Stark, IA; Story, IA
Winona	Clay, IA; Jo Daviess, IL; Union, IA
Wright	Bremer, IA; Dubuque, IA; Guthrie, IA; Marion, IA; Warren, IA
Yellow Medicine	Keokuk, IA; Lucas, IA; Montgomery, IA; Webster, IA

TABLE B.4

SPI DEMONSTRATION AND COMPARISON CITIES:  
NEW HAMPSHIRE

Demonstration Cities (Zip Codes)	Comparison Cities (Zip Codes) (All in New Hampshire)
Derry (03038)	Concord (03301, 03302, 03303, 03305)
Keene (03431, 03435)	Hanover (03755)
Manchester (03101, 03102, 03103, 03104, 03105, 03107, 03108, 03109, 03111)	Lebanon (03756, 03766)
Portsmouth (03801, 03802, 03803, 03804)	Nashua (03060, 03061, 03062, 03063, 03064)
	Salem (03079)

TABLE B.5

SPI DEMONSTRATION AND COMPARISON COUNTIES:  
NEW MEXICO

Demonstration Counties	Comparison Counties
Bernalillo	Comanche, OK; Dewey, OK; Jackson, OK; Washoe, NV
Chaves	Carter, OK; Haskell, OK; Kay, OK
Curry	Blaine, OK; Custer, OK; Garfield, OK; Jackson, OK; Kowa, OK
De Baca	Cotton, OK; Ellis, OK; Jefferson, OK; Tillman, OK
Eddy	Cochise, AZ; Garvin, OK; Stephens, OK
Guadalupe	Choctaw, OK; Okmulgee, OK; Seminole, OK
Lea	Muskogee, OK; Okmulgee, OK; Pittsburg, OK
Quay	Blaine, OK; Comanche, OK; Custer, OK; Dewey, OK; Jackson, OK
Roosevelt	Greer, OK; Major, OK; McClain, OK; Murray, OK; Washita, OK
Sandoval	Douglas, NV; Love, OK; Mohave, AZ
Torrance	Marshall, OK; Lincoln, OK; Tillman, OK; Washita, OK
Valencia	Beckham, OK; Love, OK; Mayes, OK

TABLE B.6

SPI DEMONSTRATION AND COMPARISON COUNTIES:  
NEW YORK

Demonstration Counties	Comparison Counties (All in New York)
Erie	Oneida
New York	Nassau, Westchester

TABLE B.7

SPI DEMONSTRATION AND COMPARISON COUNTIES:  
NORTH CAROLINA

Demonstration Counties	Comparison Counties (All in North Carolina)
Mecklenburg	Cabarrus, Catawba, Onslow, Randolph, Rowan
Wake	Cabarrus, Catawba, Onslow, Randolph, Rowan

TABLE B.8

SPI DEMONSTRATION AND COMPARISON COUNTIES:  
OKLAHOMA

Demonstration County or City (Zip Codes)	Comparison County or City (Zip Codes) (All in Oklahoma)
Muskogee	Beckham, Carter, Caddo, Ottawa, Pawnee
Northern Oklahoma City (73101, 73102, 73103, 73104, 73105, 73106, 73107, 73108, 73109, 73111, 73112, 73113, 73114, 73116, 73117, 73118, 73119, 73120, 73121, 73122, 73123, 73125, 73126, 73127, 73129, 73131, 73132, 73134, 73135, 73136, 73137, 73139, 73141, 73142, 73143, 73144, 73146, 73147, 73148, 73149, 73150, 73154, 73155, 73157, 73159, 73162, 73169, 73170, 73172, 73189)	Osage, Rogers, and Wagoner counties and southern Oklahoma City (73151, 73152, 73153, 73156, 73160, 73163, 73164, 73165, 73167, 73173, 73177, 73178, 73179, 73180, 73184, 73185, 73190, 73193, 73194, 73195, 73196, 73197, 73198, 73199)
Payne	Canadian, Craig, Logan, Noble, Texas
Tulsa	Canadian, Creek, Garfield, Logan, Washington



TABLE B.9

SPI DEMONSTRATION AND COMPARISON COUNTIES:  
OHIO

Demonstration Counties	Comparison Counties (All in Ohio)
Franklin	Hamilton, Summit
Lucas	Mahoning
Montgomery	Summit
Portage	Licking

TABLE B.10

SPI DEMONSTRATION AND COMPARISON COUNTIES:  
VERMONT

Demonstration Counties	Comparison Counties
Addison	Columbia, NY; Kenebec, ME; Niagara, NY; Schuyler, NY; Washington, NY
Bennington	Broome, NY; Fulton, NY; Greene, NY; Herkimer, NY; Schoharie, NY
Caledonia	Allegany, NY; Cattaraugus, NY; Clinton, NY; Delaware, NY; Penobscot, ME
Chittenden	Dutchess, NY; Hampshire, MA; Plymouth, MA; Sagadahoc, ME; York, ME
Essex	Cattaraugus, NY; Hampden, MA; Oxford, ME; Penobscot, ME; Somerset, ME
Franklin	Androscoggin, ME; Monroe, NY; Niagara, NY; Onondaga, NY; Orleans, NY
Grand Isle	Cumberland, ME; Livingston, NY; Madison, NY; Tioga, NY; Wayne, NY
Lamoille	Greene, NY; Kennebec, ME; Knox, ME; Oswego, NY; Schoharie, NY
Orange	Columbia, NY; Kennebec, ME; Rensselaer, NY; Schoharie, NY; Ulster, NY
Orleans	Allegany, NY; Cattaraugus, NY; Chautauqua, NY; Somerset, ME; St. Lawrence, NY
Rutland	Androscoggin, ME; Columbia, NY; Monroe, NY; Onondaga, NY; Rensselaer, NY
Washington	Albany, NY; Bristol, MA; Cumberland, ME; Schenectady, NY; Worcester, MA
Windham	Bristol, MA; Monroe, NY; Niagara, NY; Orleans, NY; Ulster, NY
Windsor	Albany, NY; Bristol, MA; Kennebec, ME; Orange, NY; Ulster, NY

TABLE B.11

SPI DEMONSTRATION AND COMPARISON COUNTIES:  
WISCONSIN

Demonstration Counties	Comparison Counties
Adams	Knox, IL; Marquette, MI; Presque Isle, MI; Richland, IL; Warren, IL
Ashland	Alpena, MI; Clay, IL; Huron, MI; Presque Isle, MI; Richland, IL
Barron	Charlevoix, MI; Grand Traverse, MI; Livingston, IL; Shiawassee, MI; Whiteside, IL
Bayfield	Adams, IL; Antrim, MI; Cass, MI; Gogebic, MI; Logan, IL
Brown	Grand Traverse, MI; Jo Daviess, IL; Livingston, IL; Ottawa, MI; Washington, IL
Buffalo	Brown, IL; Jo Daviess, IL; Ontonagon, MI; Shiawassee, MI; Stark, IL
Burnett	Charlevoix, MI; Delta, MI; Livingston, IL; Sanilac, MI; Shiawassee, MI
Calumet	Grand Traverse, MI; Jo Daviess, IL; Monroe, IL; Ottawa, MI; Washington, IL
Chippewa	Charlevoix, MI; Lee, IL; Livingston, IL; Shiawassee, MI; Whiteside, IL
Clark	Charlevoix, MI; Sanilac, MI; Shiawassee, MI; Stark, IL; Washington, IL
Columbia	De Kalb, IL; Dickinson, MI; Lapeer, MI; Piatt, IL; Woodford, IL
Crawford	Brown, IL; Ontonagon, MI; Shiawassee, MI; Stark, IL; Washington, IL
Dane	Brown, IL; Grand Traverse, MI; Grundy, IL; Jo Daviess, IL; Ottawa, MI
Dodge	De Kalb, IL; Lee, IL; McHenry, IL; Whiteside, IL; Woodford, IL
Door	Grand Traverse, MI; Jo Daviess, IL; Shiawassee, MI; Stark, IL; Washington, IL

TABLE B.11 (*continued*)

Demonstration Counties	Comparison Counties
Douglass	Clay, IL; Charlevoix, MI; Delta, MI; Huron, MI; Sanilac, MI
Dunn	Brown, IL; Livingston, IL; Ontonagon, MI; Shiawassee, MI; Stark, IL
Eau Claire	Brown, IL; McDonough, IL; Ontonagon, MI; Shiawassee, MI; Stark, IL
Florence	Bond, IL; Iroquois, IL; Madison, IL; Menard, IL; Sangamon, IL
Fond du Lac	Grand Traverse, MI; Grundy, IL; Jo Daviess, IL; Livingston, IL; Ottawa, MI
Forest	Fulton, IL; Hamilton, IL; Macoupin, IL; Newaygo, MI; Williamson, IL
Fond du Lac	Grundy, IL; Jo Daviess, IL; Monroe, IL; Stark, IL; Washington, IL
Grant	Brown, IL; Grand Traverse, MI; Livingston, IL; Stark, IL; Whiteside, IL
Green	Grand Traverse, MI; Grundy, IL; Jo Daviess, IL; Livingston, IL; Ottawa, MI
Green Lake	Jo Daviess, IL; Grand Traverse, MI; Livingston, IL; Stark, IL; Washington, IL
Iowa	Brown, IL; Grand Traverse, MI; Grundy, IL; Jo Daviess, IL; Livingston, IL
Iron	Antrim, MI; La Salle, IL; Logan, IL; Saint Clair, MI; Stephenson, IL
Jackson	Chippewa, MI; Delta, MI; Houghton, MI; Sanilac, MI; Shiawassee, MI
Jefferson	Grand Traverse, MI; Jo Daviess, IL; Monroe, IL; Ottawa, MI; Washington, IL
Juneau	Hillsdale, MI; Menominee, MI; Morgan, IL; Saint Clair, MI; St. Joseph, MI
Kenosha	Allegan, MI; Clinton, IL; Henry, IL; Mercer, IL; Tazewell, IL

TABLE B.11 (*continued*)

Demonstration Counties	Comparison Counties
Kewaunee	Grand Traverse, MI; Grundy, IL; Jo Daviess, IL; Livingston, IL; Ottawa, MI
La Crosse	Grand Traverse, MI; Lee, IL; Livingston, IL; Midland, MI; Shiawassee, MI
Lafayette	Brown, IL; Grand Traverse, MI; Livingston, IL; Stark, IL; Whiteside, IL
Langlade	Branch, MI; Ionia, MI; Mercer, IL; Tuscola, MI; Wayne, IL
Lincoln	Grand Traverse, MI; Lee, IL; Livingston, IL; Shiawassee, MI; Whiteside, IL
Manitowoc	Grand Traverse, MI; Lee, IL; Livingston, IL; Ottawa, MI; Whiteside, IL
Marathon	Grand Traverse, MI; Lee, IL; Livingston, IL; Ottawa, MI; Whiteside, IL
Marinette	Bureau, IL; Emmet, MI; Kent, MI; Mercer, IL; Washtenaw, MI
Marquette	Antrim, MI; Marshall, IL; Monroe, MI; Saint Clair, MI; Stephenson, IL
Menominee	Alcona, MI; Alexander, IL; Johnson, IL; Lake, MI; Luce, MI
Milwaukee	Berrien, MI; Edgar, IL; Jefferson, IL; Kankaskas, MI; Montcalm, MI
Monroe	Charlevoix, MI; Grand Traverse, MI; Livingston, IL; Sanilac, MI; Shiawassee, MI
Oconto	Charlevoix, MI; Dickinson, MI; Lee, IL; Otsego, MI; Whiteside, IL
Oneida	Grand Traverse, MI; Grundy, IL; Livingston, IL; Stark, IL; Whiteside, IL
Outagamie	Grand Traverse, MI; Jo Daviess, IL; Monroe, IL; Ottawa, MI; Washington, IL
Ozaukee	Grand Traverse, MI; Jo Daviess, IL; Monroe, IL; Ottawa, MI; Washington, IL

TABLE B.11 (*continued*)

Demonstration Counties	Comparison Counties
Pepin	Clinton, IL; Henry, IL; La Salle, IL; Mercer, IL; Morgan, IL
Pierce	Grundy, IL; Jo Daviess, IL; Monroe, IL; Stark, IL; Washington, IL
Polk	Benzie, MI; Bureau, IL; Emmet, MI; Kent, MI; Knox, IL
Portage	Emmet, MI; Kent, MI; Knox, IL; Midland, MI; Warren, IL
Price	Charlevoix, MI; Delta, MI; Dickinson, MI; Livingston, IL; Whiteside, IL
Racine	Logan, IL; Marshall, IL; Monroe, MI; Saint Clair, MI; Stephenson, IL
Richland	Delta, MI; Grand Traverse, MI; Livingston, IL; Sanilac, MI; Shiawassee, MI
Rock	Bureau, IL; Emmet, MI; Kent, MI; Mercer, IL; Washtenaw, MI
Rusk	Charlevoix, MI; Clay, IL; Delta, MI; Houghton, MI; Huron, MI
Sauk	Charlevoix, MI; Lee, IL; Livingston, IL; Otsego, MI; Whiteside, IL
Sawyer	Chippewa, MI; Houghton, MI; Isabella, MI; Missaukee, MI; Sanilac, MI
Shawano	Charlevoix, MI; Lee, IL; Livingston, IL; Otsego, MI; Whiteside, IL
Sheboygan	Grand Traverse, MI; Jo Daviess, IL; Monroe, IL; Ottawa, MI; Washington, IL
St. Croix	Grand Traverse, MI; Grundy, IL; Jo Daviess, IL; Livingston, MI; Ottawa, MI
Taylor	Jo Daviess, IL; Livingston, IL; Shiawassee, MI; Stark, IL; Washington, IL
Trempealeau	Jo Daviess, IL; Livingston, IL; Shiawassee, MI; Stark, IL; Washington, IL

TABLE B.11 (*continued*)

Demonstration Counties	Comparison Counties
Vernon	Brown, IL; Chippewa, MI; Delta, MI; Livingston, IL; Sanilac, MI
Vilas	Clinton, IL; Ionia, MI; Menominee, MI; Mercer, IL; Morgan, IL
Walworth	Grand Traverse, MI; Jo Daviess, IL; Monroe, IL; Ottawa, MI; Washington, IL
Washburn	Benzie, MI; Knox, IL; Marquette, MI; Presque Isle, MI; Richland, IL
Washington	Grand Traverse, MI; Jo Daviess, IL; Monroe, IL; Ottawa, MI; Washington, IL
Waukesha	Grand Traverse, MI; Jo Daviess, IL; Livingston, MI; Monroe, IL; Ottawa, MI
Waupaca	Grand Traverse, MI; Jo Daviess, IL; Lee, IL; Livingston, IL; Ottawa, MI
Waushara	Brown, IL; Chippewa, MI; Delta, MI; Sanilac, MI; Shiawassee, MI
Winnebago	Grand Traverse, MI; Grundy, IL; Jo Daviess, IL; Livingston, IL; Ottawa, MI
Wood	Grand Traverse, MI; Jo Daviess, IL; Lee, IL; Livingston, IL; Stark, IL





## **APPENDIX C**

### **TARGET CRITERIA, SAMPLE SELECTION, AND BASELINE CHARACTERISTICS OF PARTICIPANTS AND POTENTIAL AND SELECTED COMPARISON GROUP MEMBERS**



TABLE C.1  
TARGET CRITERIA MEASURED IN SSA DATA<sup>a</sup>

State Project	Age (Years)	Disability	Other
California	18 to 65	Mental illness	
Iowa	18 to 65	Any	
Minnesota	18 to 65	Any	
New Hampshire	18 to 65	Mental illness in one site, all diagnoses in the other site <sup>b</sup>	
New Mexico	18 to 65	Any	
New York	Any <sup>c</sup>	Mental illness	SSI or concurrent
North Carolina	18 to 65	Any	
Ohio	18 to 65	Mental illness <sup>b</sup>	
Oklahoma	18 to 65	Mental illness	Recipients with zero earnings in month before enrollment
Vermont	18 to 60	Any	
Wisconsin	18 to 65	Any	

Source: Mathematica Policy Research review of state project documents.

<sup>a</sup>Some state projects limited participation to vocational rehabilitation (VR) participants, but the SSA data did not contain information on VR participation.

<sup>b</sup>Although Ohio reported having mental illness as a targeting criterion, SSA data indicated that more than 10 percent of participants did not have a diagnosis of mental illness. Therefore, we did not limit our potential comparison group member pool in Ohio to participants with a diagnosis of mental illness.

<sup>c</sup>We limited the evaluation sample to participants aged 18 to 65 years.

SSA = Social Security Administration; SSI = Supplemental Security Income.

TABLE C.2

BASELINE CHARACTERISTICS OF SSI AND CONCURRENT PARTICIPANTS  
AND COMPARISON GROUP MEMBERS IN CALIFORNIA  
(Percentages Unless Otherwise Noted)

	Participants	Comparison Group	
		Selected	Potential
Demographic and Health Characteristics			
Disability			
Mental Disorder	87.9	100.0***	100.0***
Musculoskeletal System	1.0	0.5	3.1*
Neoplasms	0.0	1.0	0.2
Nervous System/Sense Organs	1.0	0.5	1.5
Mental Retardation	2.9	4.4	4.2
Other	3.9	3.4	4.3
Missing	6.8	0.0***	0.0***
Age at Intake			
Mean (Years)	39.3	38.2	43.2***
Younger than 25	6.8	8.7	7.7
25 to 39	45.6	45.1	28.7***
40 to 54	39.8	41.3	42.6
55 or Older	6.3	4.9	18.6***
Male	49.0	50.5	45.8
White	64.8	73.8**	50.3***
Education			
Mean, Among Those with Data (Years of Schooling)	12.1	11.7	10.7***
Less than High School	11.2	16.0	16.6**
High School	20.9	21.4	13.6***
Postsecondary, Associate’s Degree, or Vocational	7.3	6.3	3.8***
Bachelor’s Degree or Higher	4.9	3.9	1.4***
Missing	55.8	52.4	64.6***
Living Arrangements			
Lived Alone/in Own Household in Month Before Intake <sup>a</sup>	95.6	93.2	92.4*
Lived in Medical Facility at Any Point in Two Years Before Intake <sup>b</sup>	1.0	1.9	1.8
Social Security Participation and Benefits			
Social Security Benefit Type at Intake			
SSI Only	50.0	45.6	67.9***
Concurrent	50.0	54.4	32.1***
Eligible for Medicaid in Month Before Intake	93.2	93.2	84***
Length of Time Receiving Social Security			
Received SSI or SSDI Before Age 18	3.5	4.9	4.8
Time on SSI or SSDI in Two Years Before Intake (Months)	21.5	21.6	21.6

TABLE C.2 (continued)

	Participants	Comparison Group	
		Selected	Potential
Social Security Benefit Amount (Including Federal and State Payments) (Dollars)			
SSI in Month Before Intake	475	460	554***
SSDI in Month Before Intake	274	295	178***
Average SSI per Month in Two Years Before Intake	418	381	510***
Average SSDI per Month in Two Years Before Intake	249	260	164***
Employment History			
Based on SSA Data			
Ever Used Work Incentive in Year Before Intake	35.4	35.9	13.9***
Employed (Data Available Only for SSI Recipients)			
One month before intake	28.2	26.7	4.8***
Two months before intake	26.7	25.7	4.8***
Three months before intake	25.7	24.8	4.8***
Never employed in two years before intake	58.7	57.8	91.2***
Average Earnings (Data Available Only for SSI Recipients) (Dollars)			
One month before intake	171	220	34***
Two months before intake	164	204	34***
Three months before intake	153	195	33***
Per month in two years before intake	122	151	25***
Based on SER Data			
Employed			
One year before intake year	51.5	52.9	15.0***
Two years before intake year	45.6	44.7	16.7***
Three years before intake year	45.1	45.1	17.4***
Four years before intake year	47.6	49.5	18.7***
Five years before intake year	41.7	48.1	19.7***
Average Earnings (Dollars)			
One year before intake year	1,933	2,266	660***
Two years before intake year	1,806	2,176	764***
Three years before intake year	1,970	2,066	857***
Four years before intake year	2,398	2,454	980***
Five years before intake year	2,489	2,864	1,088***
Sample Size <sup>c</sup>	206	204	39,702

Source: All characteristics except annual earnings and employment are based on SSA administrative data. The SER provides annual earnings and employment.

Note: All dollar amounts are inflation-adjusted to 2004 dollars using the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

<sup>a</sup>Homeless people and people in nonmedical residential facilities are included in this total.

<sup>b</sup>In order to be counted in this total, Medicaid must have been paying more than 50 percent of the medical facility expenses.

<sup>c</sup>For some characteristics, the sample size may differ because of missing data.

SER = Summary Earnings Record; SSA = Social Security Administration; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

\*Significantly different from participants at the 0.10 level, two-tailed test.

\*\*Significantly different from participants at the 0.05 level, two-tailed test.

\*\*\*Significantly different from participants at the 0.01 level, two-tailed test.

TABLE C.3  
BASELINE CHARACTERISTICS OF SSI AND CONCURRENT PARTICIPANTS  
AND COMPARISON GROUP MEMBERS IN IOWA  
(Percentages Unless Otherwise Noted)

	Participants	Comparison Group	
		Selected	Potential
Demographic and Health Characteristics			
Disability			
Mental Disorder	53.9	56.6	31.0***
Musculoskeletal System	9.7	10.2	12.8*
Neoplasms	1.1	1.9	1.6
Nervous System/Sense Organs	11.6	7.8*	9.9
Mental Retardation	19.0	16.9	30.5***
Other	14.5	13.9	19.7**
Missing	7.0	5.9	10.9**
Age at Intake			
Mean (Years)	36.3	35.2	41.0***
Younger than 25	22.8	18.8	14.0***
25 to 39	34.6	45.6***	31.6
40 to 54	35.4	26.8**	33.2
55 or Older	6.4	7.5	18.9***
Male	44.8	48.8	45.3
White	90.6	87.4	90.2
Education			
Mean, Among Those with Data (Years of Schooling)	11.8	11.8	11.1***
Less than High School	16.9	19.6	18.0
High School	33.5	31.4	22.2***
Postsecondary, Associate’s Degree, or Vocational	7.8	11.0	2.6***
Bachelor’s Degree or Higher	2.4	2.7	0.9***
Missing	39.4	35.4	56.4***
Living Arrangements			
Lived Alone/in Own Household in Month Before Intake <sup>a</sup>	92.2	93.6	86.7***
Lived in Medical Facility at Any Point in Two Years Before Intake <sup>b</sup>	1.1	1.6	7.6***
Social Security Participation and Benefits			
Social Security Benefit Type at Intake			
SSI Only	35.7	36.7	54.3***
Concurrent	64.3	63.3	45.7***
Eligible for Medicaid in Month Before Intake	82.6	80.4	72.5***
Length of Time Receiving Social Security			
Received SSI or SSDI Before Age 18	12.8	13.0	17.4
Time on SSI or SSDI in Two Years Before Intake (Months)	20.4	20.4	21.0

TABLE C.3 (continued)

	Participants	Comparison Group	
		Selected	Potential
Social Security Benefit Amount (Including Federal and State Payments) (Dollars)			
SSI in Month Before Intake	274	271	275
SSDI in Month Before Intake	329	304	228***
Average SSI per Month in Two Years Before Intake	225	222	264***
Average SSDI per Month in Two Years Before Intake	261	244	187***
Employment History			
Based on SSA Data			
Ever Used Work Incentive in Year Before Intake	45.6	43.2	22.2***
Employed (Data Available Only for SSI Recipients)			
One month before intake	43.2	40.8	25.1***
Two months before intake	38.3	39.1	24.9***
Three months before intake	36.2	38.3	24.7***
Never employed in two years before intake	46.4	47.5	65.9***
Average Earnings (Data Available Only for SSI Recipients) (Dollars)			
One month before intake	217	261	96***
Two months before intake	185	219	95***
Three months before intake	184	213	92***
Per month in two years before intake	162	169	82***
Based on SER Data			
Employed			
One year before intake year	61.7	63.3	40.0***
Two years before intake year	62.7	66.2	41.9***
Three years before intake year	61.9	64.6	42.6***
Four years before intake year	59.0	59.0	42.5***
Five years before intake year	56.8	54.7	42.3***
Average Earnings (Dollars)			
One year before intake year	3,283	3,394	2,076***
Two years before intake year	3,975	4,146	2,558***
Three years before intake year	3,900	4,114	2,682***
Four years before intake year	3,841	3,991	2,673***
Five years before intake year	3,821	3,395	2,710***
Sample Size <sup>c</sup>	373	313	12,146

Source: All characteristics except annual earnings and employment are based on SSA administrative data. The SER provides annual earnings and employment.

Note: All dollar amounts are inflation-adjusted to 2004 dollars using the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

<sup>a</sup>Homeless people and people in nonmedical residential facilities are included in this total.

<sup>b</sup>In order to be counted in this total, Medicaid must have been paying more than 50 percent of the medical facility expenses.

<sup>c</sup>For some characteristics, the sample size may differ because of missing data.

SER = Summary Earnings Record; SSA = Social Security Administration; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

\*Significantly different from participants at the 0.10 level, two-tailed test.

\*\*Significantly different from participants at the 0.05 level, two-tailed test.

\*\*\*Significantly different from participants at the 0.01 level, two-tailed test.

TABLE C.4

BASELINE CHARACTERISTICS OF SSI AND CONCURRENT PARTICIPANTS AND  
COMPARISON GROUP MEMBERS IN MINNESOTA  
(Percentages Unless Otherwise Noted)

	Participants	Comparison Group	
		Selected	Potential
Demographic and Health Characteristics			
Disability			
Mental Disorder	56.1	56.5	36.4***
Musculoskeletal System	5.3	7.0	12.3***
Neoplasms	0.4	2.5**	1.6*
Nervous System/Sense Organs	21.4	10.9***	10.1***
Mental Retardation	14.7	19.6	25.8***
Other	14.0	16.5	21.6***
Missing	4.6	4.9	11.5***
Age at Intake			
Mean (Years)	36.0	36.1	42.2***
Younger than 25	21.8	18.6	11.9***
25 to 39	41.1	44.2	29.8***
40 to 54	29.5	30.2	34.8*
55 or Older	7.0	6.3	21.1***
Male	38.9	40.4	45.2**
White	78.9	80.4	79.1
Education			
Mean, Among Those with Data (Years of Schooling)	12.3	12.4	10.9***
Less than High School	14.4	11.6	17.7
High School	31.6	41.4**	17.0***
Postsecondary, Associate’s Degree, or Vocational	15.1	10.9	2.8***
Bachelor’s Degree or Higher	4.6	7.0	0.8***
Missing	34.4	29.1	61.7***
Living Arrangements			
Lived Alone/in Own Household in Month Before Intake <sup>a</sup>	95.1	91.6*	89.9***
Lived in Medical Facility at Any Point in Two Years Before Intake <sup>b</sup>	1.4	2.8	3.6**
Social Security Participation and Benefits			
Social Security Benefit Type at Intake			
SSI Only	35.4	30.5	61.4***
Concurrent	64.6	69.5	38.6***
Eligible for Medicaid in Month Before Intake	0.4	64.2***	66.6***
Length of Time Receiving Social Security			
Received SSI or SSDI Before Age 18	14.0	13.9	14.3
Time on SSI or SSDI in Two Years Before Intake (Months)	22.2	21.9	21.1***



TABLE C.4 (Continued)

	Participants	Comparison Group	
		Selected	Potential
Social Security Benefit Amount (Including Federal and State Payments) (Dollars)			
SSI in Month Before Intake	233	229	324***
SSDI in Month Before Intake	312	329	196***
Average SSI per Month in Two Years Before Intake	249	241	310***
Average SSDI per Month in Two Years Before Intake	272	292	164***
Employment History			
Based on SSA Data			
Ever Used Work Incentive in Year Before Intake	22.5	21.4	17.3**
Employed (Data Available Only for SSI Recipients)			
One month before intake	38.6	36.5	14.2***
Two months before intake	37.5	34.4	14.2***
Three months before intake	34.7	34.0	14.0***
Never employed in two years before intake	43.5	46.0	78.8***
Average Earnings (Data Available Only for SSI Recipients) (Dollars)			
One month before intake	225	221	69***
Two months before intake	215	216	69***
Three months before intake	181	203	67***
Per month in two years before intake	128	110	59***
Based on SER Data			
Employed			
One year before intake year	62.5	62.1	30.9***
Two years before intake year	59.3	53.7	34.9***
Three years before intake year	61.8	60.4	36.9***
Four years before intake year	59.3	60.0	37.6***
Five years before intake year	58.6	59.6	37.6***
Average Earnings (Dollars)			
One year before intake year	2,211	2,015	1,606**
Two years before intake year	2,756	2,275	2,112*
Three years before intake year	3,108	2,951	2,369*
Four years before intake year	3,046	3,054	2,418
Five years before intake year	2,598	2,979	2,410
Sample Size <sup>c</sup>	285	279	91,223

Source: All characteristics except annual earnings and employment are based on SSA administrative data. The SER provides annual earnings and employment.

Note: All dollar amounts are inflation-adjusted to 2004 dollars using the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

<sup>a</sup>Homeless people and people in nonmedical residential facilities are included in this total.

<sup>b</sup>In order to be counted in this total, Medicaid must have been paying more than 50 percent of the medical facility expenses.

<sup>c</sup>For some characteristics, the sample size may differ because of missing data.

SER = Summary Earnings Record; SSA = Social Security Administration; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

\*Significantly different from participants at the 0.10 level, two-tailed test.

\*\*Significantly different from participants at the 0.05 level, two-tailed test.

\*\*\*Significantly different from participants at the 0.01 level, two-tailed test.

TABLE C.5

BASELINE CHARACTERISTICS OF SSI AND CONCURRENT PARTICIPANTS AND  
COMPARISON GROUP MEMBERS IN NEW HAMPSHIRE  
(Percentages Unless Otherwise Noted)

	Participants	Comparison Group	
		Selected	Potential
Demographic and Health Characteristics			
Disability			
Mental Disorder	66.7	63.9	52.1**
Musculoskeletal System	4.2	6.9	7.6
Neoplasms	0.0	1.4	1.3
Nervous System/Sense Organs	12.5	9.7	8.5
Mental Retardation	12.5	13.9	21.5*
Other	15.3	15.3	13.7
Missing	5.6	5.6	6.1
Age at Intake			
Mean (Years)	37.5	38.9	41.1**
Younger than 25	12.5	16.7	8.3
25 to 39	38.9	41.7	36.7
40 to 54	40.3	27.8	38.0
55 or Older	6.9	13.9	15.0*
Male	44.4	45.8	49.5
White	91.7	81.9	93.1
Education			
Mean, Among Those with Data (Years of Schooling)	11.4	11.0	11.4
Less than High School	18.1	26.4	19.9
High School	27.8	29.2	26.2
Postsecondary, Associate’s Degree, or Vocational	6.9	4.2	6.6
Bachelor’s Degree or Higher	2.8	1.4	2.4
Missing	44.4	38.9	45.0
Living Arrangements			
Lived Alone/in Own Household in Month Before Intake <sup>a</sup>	94.4	97.2	95.2
Lived in Medical Facility at Any Point in Two Years Before Intake <sup>b</sup>	0.0	0.0	0.5
Social Security Participation and Benefits			
Social Security Benefit Type at Intake			
SSI Only	44.4	38.9	4.3***
Concurrent	55.6	61.1	95.7***
Eligible for Medicaid in Month Before Intake	1.4	0.0	2.2
Length of Time Receiving Social Security			
Received SSI or SSDI Before Age 18	14.3	8.5	7.6**
Time on SSI or SSDI in Two Years Before Intake (Months)	21.8	20.6	20.9

TABLE C.5 (continued)

	Participants	Comparison Group	
		Selected	Potential
Social Security Benefit Amount (Including Federal and State Payments) (Dollars)			
SSI in Month Before Intake	273	255	147***
SSDI in Month Before Intake	310	237	498***
Average SSI per Month in Two Years Before Intake	262	190**	133***
Average SSDI per Month in Two Years Before Intake	265	205	416***
Employment History			
Based on SSA Data			
Ever Used Work Incentive in Year Before Intake	19.4	22.2	20.7
Employed (Data Available Only for SSI Recipients)			
One month before intake	16.7	13.9	18.9
Two months before intake	13.9	11.1	18.7
Three months before intake	16.7	13.9	18.9
Never employed in two years before intake	61.1	70.8	71.6*
Average Earnings (Data Available Only for SSI Recipients) (Dollars)			
One month before intake	61	61	117
Two months before intake	49	39	110
Three months before intake	56	63	109
Per month in two years before intake	73	79	93
Based on SER Data			
Employed			
One year before intake year	44.4	47.2	48.2
Two years before intake year	56.9	55.6	52.2
Three years before intake year	62.5	56.9	52.3*
Four years before intake year	61.1	55.6	53.0
Five years before intake year	59.7	58.3	54.4
Average Earnings (Dollars)			
One year before intake year	1,403	3,469	2,706*
Two years before intake year	2,769	3,191	3,787
Three years before intake year	3,585	4,146	3,766
Four years before intake year	3,305	4,344	3,957
Five years before intake year	3,272	4,035	3,911
Sample Size <sup>c</sup>	72	53	851

Source: All characteristics except annual earnings and employment are based on SSA administrative data. The SER provides annual earnings and employment.

Note: All dollar amounts are inflation-adjusted to 2004 dollars using the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

<sup>a</sup>Homeless people and people in nonmedical residential facilities are included in this total.

<sup>b</sup>In order to be counted in this total, Medicaid must have been paying more than 50 percent of the medical facility expenses.

<sup>c</sup>For some characteristics, the sample size may differ because of missing data.

SER = Summary Earnings Record; SSA = Social Security Administration; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

\*Significantly different from participants at the 0.10 level, two-tailed test.

\*\*Significantly different from participants at the 0.05 level, two-tailed test.

\*\*\*Significantly different from participants at the 0.01 level, two-tailed test.

TABLE C.6

BASELINE CHARACTERISTICS OF SSI AND CONCURRENT PARTICIPANTS AND  
COMPARISON GROUP MEMBERS IN NEW MEXICO  
(Percentages Unless Otherwise Noted)

	Participants	Comparison Group	
		Selected	Potential
Demographic and Health Characteristics			
Disability			
Mental Disorder	44.8	42.6	31.2***
Musculoskeletal System	10.1	10.1	15.9***
Neoplasms	0.6	1.1	1.7**
Nervous System/Sense Organs	15.8	11.8*	9.9***
Mental Retardation	24.0	25.6	21.1
Other	14.5	17.2	25.4***
Missing	4.8	4.8	11.1***
Age at Intake			
Mean (Years)	36.2	35.7	43.4***
Younger than 25	20.2	20.8	10.1***
25 to 39	39.7	41.0	28.0***
40 to 54	31.9	34.2	34.9
55 or Older	7.1	3.6**	24.5***
Male	52.3	53.2	44.7***
White	62.4	66.7	75.1***
Education			
Mean, Among Those with Data (Years of Schooling)	11.9	11.8	10.7***
Less than High School	13.2	12.6	20.3***
High School	19.1	22.3	15.9**
Postsecondary, Associate’s Degree, or Vocational	6.7	4.6	3.1***
Bachelor’s Degree or Higher	4.0	2.7	0.8***
Missing	57.1	57.8	59.9
Living Arrangements			
Lived Alone/in Own Household in Month Before Intake <sup>a</sup>	93.9	95.0	89.7***
Lived in Medical Facility at Any Point in Two Years Before Intake <sup>b</sup>	1.0	0.8	4.4***
Social Security Participation and Benefits			
Social Security Benefit Type at Intake			
SSI Only	49.4	49.2	64.2***
Concurrent	50.6	50.8	35.8***
Eligible for Medicaid in Month Before Intake	81.7	50.2***	21.3***
Length of Time Receiving Social Security			
Received SSI or SSDI Before Age 18	19.9	20.3	13.6***
Time on SSI or SSDI in Two Years Before Intake (Months)	21.9	22.3	21.1***

TABLE C.6 (continued)

	Participants	Comparison Group	
		Selected	Potential
Social Security Benefit Amount (Including Federal and State Payments) (Dollars)			
SSI in Month Before Intake	330	336	337
SSDI in Month Before Intake	260	235	179***
Average SSI per Month in Two Years Before Intake	304	324	319
Average SSDI per Month in Two Years Before Intake	221	194	148***
Employment History			
Based on SSA Data			
Ever Used Work Incentive in Year Before Intake	29.0	25.4	14.7***
Employed (Data Available Only for SSI Recipients)			
One month before intake	22.3	19.7	7.1***
Two months before intake	21.2	19.3	7.1***
Three months before intake	19.5	18.9	7.0***
Never employed in two years before intake	66.0	67.9	88.7***
Average Earnings (Data Available Only for SSI Recipients) (Dollars)			
One month before intake	116	97	35***
Two months before intake	108	92	34***
Three months before intake	102	110	34***
Per month in two years before intake	85	87	26***
Based on SER Data			
Employed			
One year before intake year	43.5	43.5	23.2***
Two years before intake year	48.1	48.3	26.0***
Three years before intake year	42.7	43.3	27.5***
Four years before intake year	42.7	39.7	28.8***
Five years before intake year	43.7	46.0	29.8***
Average Earnings (Dollars)			
One year before intake year	1,780	1,962	1,130***
Two years before intake year	2,084	2,335	1,510***
Three years before intake year	2,541	2,446	1,715***
Four years before intake year	2,505	2,305	1,844***
Five years before intake year	2,693	2,577	1,980***
Sample Size <sup>c</sup>	524	436	32,494

Source: All characteristics except annual earnings and employment are based on SSA administrative data. The SER provides annual earnings and employment.

Note: All dollar amounts are inflation-adjusted to 2004 dollars using the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

<sup>a</sup>Homeless people and people in nonmedical residential facilities are included in this total.

<sup>b</sup>In order to be counted in this total, Medicaid must have been paying more than 50 percent of the medical facility expenses.

<sup>c</sup>For some characteristics, the sample size may differ because of missing data.

SER = Summary Earnings Record; SSA = Social Security Administration; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

\*Significantly different from participants at the 0.10 level, two-tailed test.

\*\*Significantly different from participants at the 0.05 level, two-tailed test.

\*\*\*Significantly different from participants at the 0.01 level, two-tailed test.

TABLE C.7

BASELINE CHARACTERISTICS OF SSI AND CONCURRENT PARTICIPANTS AND  
COMPARISON GROUP MEMBERS IN NEW YORK  
(Percentages Unless Otherwise Noted)

	Participants	Comparison Group	
		Selected	Potential
Demographic and Health Characteristics			
Disability			
Mental Disorder	93.9	100.0***	100.0***
Musculoskeletal System	1.9	3.1*	4.2***
Neoplasms	0.5	0.1	0.2**
Nervous System/Sense Organs	1.4	2.1	1.4
Mental Retardation	2.3	2.2	6.5***
Other	3.7	5.3*	5.1*
Missing	4.3	0.0***	0.0***
Age at Intake			
Mean (Years)	41.2	41.0	41.6
Younger than 25	5.0	4.3	10.9***
25 to 39	37.3	39.6	31.0***
40 to 54	46.9	46.2	40.0***
55 or Older	8.4	7.9	16.2***
Male	51.0	51.7	49.8
White	37.6	38.9	58.6***
Education			
Mean, Among Those with Data (Years of Schooling)	11.9	11.9	11.2***
Less than High School	18.2	16.0	18.8
High School	19.8	21.7	18.4
Postsecondary, Associate’s Degree, or Vocational	10.0	9.3	5.9***
Bachelor’s Degree or Higher	6.0	5.2	3.0***
Missing	46.0	47.7	53.9***
Living Arrangements			
Lived Alone/in Own Household in Month Before Intake <sup>a</sup>	96.1	94.6	87.6***
Lived in Medical Facility at Any Point in Two Years Before Intake <sup>b</sup>	1.2	0.9	5.9***
Social Security Participation and Benefits			
Social Security Benefit Type at Intake			
SSI Only	69.4	69.3	62.5***
Concurrent	30.6	30.7	37.5***
Eligible for Medicaid In Month Before Intake	97.1	97.9	82.9***
Length of Time Receiving Social Security			
Received SSI or SSDI Before Age 18	3.3	4.0	7.5***
Time on SSI or SSDI in Two Years Before Intake (Months)	23.7	23.7	21.6***

TABLE C.7 (continued)

	Participants	Comparison Group	
		Selected	Potential
<b>Social Security Benefit Amount (Including Federal and State Payments) (Dollars)</b>			
SSI in Month Before Intake	492	480	411***
SSDI in Month Before Intake	160	160	213***
Average SSI per Month in Two Years Before Intake	486	474	389***
Average SSDI per Month in Two Years Before Intake	155	155	194***
<b>Employment History</b>			
<b>Based on SSA Data</b>			
Ever Used Work Incentive in Year Before Intake	14.6	14.1	16.6*
Employed (Data Available Only for SSI Recipients)			
One month before intake	14.3	14.2	9.2***
Two months before intake	14.0	14.0	9.1***
Three months before intake	13.3	13.7	9.0***
Never employed in two years before intake	74.2	73.8	84.5***
Average Earnings (Data Available Only for SSI Recipients) (Dollars)			
One month before intake	89	91	63**
Two months before intake	89	85	61***
Three months before intake	82	82	63*
Per month in two years before intake	76	75	52***
<b>Based on SER Data</b>			
Employed			
One year before intake year	34.5	33.3	23.0***
Two years before intake year	32.5	32.3	25.2***
Three years before intake year	29.6	28.6	25.4***
Four years before intake year	30.8	32.1	25.7***
Five years before intake year	29.7	30.5	25.8***
Average Earnings (Dollars)			
One year before intake year	1,419	1,494	1,210
Two years before intake year	1,315	1,265	1,326
Three years before intake year	1,169	1,242	1,342
Four years before intake year	1,179	1,167	1,355
Five years before intake year	1,130	1,198	1,404*
<b>Sample Size<sup>c</sup></b>	<b>1,050</b>	<b>876</b>	<b>13,183</b>

Source: All characteristics except annual earnings and employment are based on SSA administrative data. The SER provides annual earnings and employment.

Note: All dollar amounts are inflation-adjusted to 2004 dollars using the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

<sup>a</sup>Homeless people and people in nonmedical residential facilities are included in this total.

<sup>b</sup>In order to be counted in this total, Medicaid must have been paying more than 50 percent of the medical facility expenses.

<sup>c</sup>For some characteristics, the sample size may differ because of missing data.

SER = Summary Earnings Record; SSA = Social Security Administration; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

\*Significantly different from participants at the 0.10 level, two-tailed test.

\*\*Significantly different from participants at the 0.05 level, two-tailed test.

\*\*\*Significantly different from participants at the 0.01 level, two-tailed test.

TABLE C.8

BASELINE CHARACTERISTICS OF SSI AND CONCURRENT PARTICIPANTS AND  
COMPARISON GROUP MEMBERS IN NORTH CAROLINA  
(Percentages Unless Otherwise Noted)

	Participants	Comparison Group	
		Selected	Potential
Demographic and Health Characteristics			
Disability			
Mental Disorder	42.6	44.6	29.4***
Musculoskeletal System	5.4	9.3	14.4***
Neoplasms	2.5	2.5	2.2
Nervous System/Sense Organs	19.6	10.3***	9.8***
Mental Retardation	13.7	10.8	24.4***
Other	27.9	33.8	27.9
Missing	5.9	6.9	12.1***
Age at Intake			
Mean (Years)	37.1	36.4	42.8***
Younger than 25	15.2	17.6	11.6
25 to 39	42.6	41.7	28.6***
40 to 54	33.8	32.8	33.9
55 or Older	5.4	6.4	23.5***
Male	46.1	46.6	42.3
White	40.2	38.7	67.4***
Education			
Mean, Among Those with Data (Years of Schooling)	11.9	11.8	10.1***
Less than High School	16.7	16.2	23.0**
High School	24.5	25.0	12.4***
Postsecondary, Associate’s Degree, or Vocational	4.9	7.4	1.9***
Bachelor’s Degree or Higher	5.9	2.9	0.4***
Missing	48.0	48.5	62.3***
Living Arrangements			
Lived Alone/in Own Household in Month Before Intake <sup>a</sup>	90.7	88.2	85.3**
Lived in Medical Facility at Any Point in Two Years Before Intake <sup>b</sup>	2.5	2.9	2.9
Social Security Participation and Benefits			
Social Security Benefit Type at Intake			
SSI Only	39.7	42.2	57.0***
Concurrent	60.3	57.8	43.0***
Eligible for Medicaid in Month Before Intake	77.5	75.0	70.9**
Length of Time Receiving Social Security			
Received SSI or SSDI Before Age 18	10.4	11.8	14.7*
Time on SSI or SSDI in Two Years Before Intake (Months)	20.0	20.5	20.3



TABLE C.8 (continued)

	Participants	Comparison Group	
		Selected	Potential
Social Security Benefit Amount (Including Federal and State Payments) (Dollars)			
SSI in Month Before Intake	274	274	290
SSDI in Month Before Intake	333	317	229***
Average SSI per Month in Two Years Before Intake	222	234	276***
Average SSDI per Month in Two Years Before Intake	249	250	179***
Employment History			
Based on SSA Data			
Ever Used Work Incentive in Year Before Intake	30.4	26.5	19.3***
Employed (Data Available Only for SSI Recipients)			
One month before intake	17.6	16.7	7.5***
Two months before intake	17.2	17.2	7.3***
Three months before intake	17.2	17.2	7.0***
Never employed in two years before intake	67.6	68.1	88.5***
Average Earnings (Data Available Only for SSI Recipients) (Dollars)			
One month before intake	92	126	43***
Two months before intake	88	132	42***
Three months before intake	91	130	39***
Per month in two years before intake	97	95	31***
Based on SER Data			
Employed			
One year before intake year	50.0	47.5	24.3***
Two years before intake year	50.0	46.1	28.3***
Three years before intake year	55.4	55.4	30.9***
Four years before intake year	51.5	52.9	32.8***
Five years before intake year	57.4	58.3	33.8***
Average Earnings (Dollars)			
One year before intake year	2,823	2,614	1,558***
Two years before intake year	3,781	3,163	2,333***
Three years before intake year	3,823	3,322	2,671**
Four years before intake year	3,960	3,812	2,866**
Five years before intake year	4,300	4,322	2,996***
Sample Size <sup>c</sup>	204	193	10,544

Source: All characteristics except annual earnings and employment are based on SSA administrative data. The SER provides annual earnings and employment.

Note: All dollar amounts are inflation-adjusted to 2004 dollars using the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

<sup>a</sup>Homeless people and people in nonmedical residential facilities are included in this total.

<sup>b</sup>In order to be counted in this total, Medicaid must have been paying more than 50 percent of the medical facility expenses.

<sup>c</sup>For some characteristics, the sample size may differ because of missing data.

SER = Summary Earnings Record; SSA = Social Security Administration; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

\*Significantly different from participants at the 0.10 level, two-tailed test.

\*\*Significantly different from participants at the 0.05 level, two-tailed test.

\*\*\*Significantly different from participants at the 0.01 level, two-tailed test.

TABLE C.9

BASELINE CHARACTERISTICS OF SSI AND CONCURRENT PARTICIPANTS AND  
COMPARISON GROUP MEMBERS IN OKLAHOMA  
(Percentages Unless Otherwise Noted)

	Participants	Comparison Group	
		Selected	Potential
Demographic and Health Characteristics			
Disability			
Mental Disorder	96.5	100.0***	100.0***
Musculoskeletal System	2.9	4.5	6.3**
Neoplasms	0.0	0.0	0.3
Nervous System/Sense Organs	1.0	3.8**	2.3
Mental Retardation	3.8	2.2	11.6***
Other	6.1	4.8	6.2
Missing	1.9	0.0**	0.0***
Age at Intake			
Mean (Years)	41.1	41.6	41.5
Younger than 25	7.0	6.7	10.2*
25 to 39	31.8	35.0	32.2
40 to 54	50.3	43.9	39.6***
55 or Older	8.6	12.7	15.8***
Male	34.7	33.8	43.8***
White	51.6	50.0	77.5***
Education			
Mean, Among Those with Data (Years of Schooling)	11.5	11.9	10.8 ***
Less than High School	18.2	13.1*	21.3
High School	23.9	21.7	16.3***
Postsecondary, Associate’s Degree, or Vocational	7.6	6.1	3.0***
Bachelor’s Degree or Higher	2.5	3.8	1.2**
Missing	47.8	55.4*	58.3***
Living Arrangements			
Lived Alone/in Own Household in Month Before Intake <sup>a</sup>	93.9	93.6	90.4**
Lived in Medical Facility at Any Point in Two Years Before Intake <sup>b</sup>	1.0	1.3	3.4**
Social Security Participation and Benefits			
Social Security Benefit Type at Intake			
SSI Only	74.2	74.8	63.4***
Concurrent	25.8	25.2	36.6***
Eligible for Medicaid in Month Before Intake	0.6	0.3	7.8***
Length of Time Receiving Social Security			
Received SSI or SSDI Before Age 18	2.7	3.2	7.6***
Time on SSI or SSDI in Two Years Before Intake (Months)	21.9	22.0	20.7 ***

TABLE C.9 (continued)

	Participants	Comparison Group	
		Selected	Potential
<b>Social Security Benefit Amount (Including Federal and State Payments) (Dollars)</b>			
SSI in Month Before Intake	428	404	313***
SSDI in Month Before Intake	133	120	173***
Average SSI per Month in Two Years Before Intake	391	361	285***
Average SSDI per Month in Two Years Before Intake	96	87	150***
<b>Employment History</b>			
<b>Based on SSA Data</b>			
Ever Used Work Incentive in Year Before Intake	13.7	15.6	14.4
Employed (Data Available Only for SSI Recipients)			
One month before intake	3.5	0.0***	0.0***
Two months before intake	3.8	2.5	0.2***
Three months before intake	3.8	3.2	0.5***
Never employed in two years before intake	91.1	93.0	95.5***
Average Earnings) (Data Available Only for SSI Recipients)			
(Dollars)			
One month before intake	17	0***	0***
Two months before intake	18	16	2***
Three months before intake	18	23	4***
Per month in two years before intake	15	15	6***
<b>Based on SER Data</b>			
Employed			
One year before intake year	28.3	27.1	20.4***
Two years before intake year	34.4	31.2	23.2***
Three years before intake year	35.0	34.1	27.0***
Four years before intake year	35.0	35.7	27.9***
Five years before intake year	32.5	31.8	30.5
Average Earnings (Dollars)			
One year before intake year	1,030	820	645**
Two years before intake year	1,358	1,135	931**
Three years before intake year	1,648	1,275	1,234
Four years before intake year	1,772	1,152*	1,365
Five years before intake year	1,840	1,445	1,605
<b>Sample Size<sup>c</sup></b>	<b>314</b>	<b>247</b>	<b>2,603</b>

Source: All characteristics except annual earnings and employment are based on SSA administrative data. The SER provides annual earnings and employment.

Note: All dollar amounts are inflation-adjusted to 2004 dollars using the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

<sup>a</sup>Homeless people and people in nonmedical residential facilities are included in this total.

<sup>b</sup>In order to be counted in this total, Medicaid must have been paying more than 50 percent of the medical facility expenses.

<sup>c</sup>For some characteristics, the sample size may differ because of missing data.

SER = Summary Earnings Record; SSA = Social Security Administration; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

\*Significantly different from participants at the 0.10 level, two-tailed test.

\*\*Significantly different from participants at the 0.05 level, two-tailed test.

\*\*\*Significantly different from participants at the 0.01 level, two-tailed test.

TABLE C.10

BASELINE CHARACTERISTICS OF SSI AND CONCURRENT PARTICIPANTS AND  
COMPARISON GROUP MEMBERS IN OHIO  
(Percentages Unless Otherwise Noted)

	Participants	Comparison Group	
		Selected	Potential
Demographic and Health Characteristics			
Disability			
Mental Disorder	79.3	79.3	40.1***
Musculoskeletal System	5.0	3.0	9.5***
Neoplasms	0.0	0.8*	1.2**
Nervous System/Sense Organs	1.8	3.5	6.7***
Mental Retardation	12.0	9.5	24.9***
Other	3.3	12.5***	19.5***
Missing	6.7	6.5	13.8***
Age at Intake			
Mean (Years)	39.5	39.5	42.2***
Younger than 25	8.8	6.5	11.4*
25 to 39	35.0	42.8**	29.0***
40 to 54	50.0	43.5*	37.3***
55 or Older	4.5	6.3	20.0***
Male	48.0	48.8	43.0**
White	65.1	64.5	52.1***
Education			
Mean, Among Those with Data (Years of Schooling)	11.9	11.8	10.8***
Less than High School	17.3	20.8	25.2***
High School	31.0	32.5	18.3***
Postsecondary, Associate’s Degree, or Vocational	10.2	7.5	2.8***
Bachelor’s Degree or Higher	3.8	3.5	1.0***
Missing	37.8	35.8	52.7***
Living Arrangements			
Lived Alone/in Own Household in Month Before Intake <sup>a</sup>	94.5	93.8	90.2***
Lived in Medical Facility at Any Point in Two Years Before Intake <sup>b</sup>	0.8	2.0	3.7***
Social Security Participation and Benefits			
Social Security Benefit Type at Intake			
SSI Only	47.5	44.8	69.2***
Concurrent	52.5	55.3	30.8***
Eligible for Medicaid in Month Before Intake	0.8	0.3	4.5***
Length of Time Receiving Social Security			
Received SSI or SSDI Before Age 18	5.1	4.5	14.0***
Time on SSI or SSDI in Two Years Before Intake (Months)	20.7	20.6	21.7***

TABLE C.10 (continued)

	Participants	Comparison Group	
		Selected	Potential
Social Security Benefit Amount (Including Federal and State Payments) (Dollars)			
SSI in Month Before Intake	297	289	359***
SSDI in Month Before Intake	257	263	148***
Average SSI per Month in Two Years Before Intake	274	271	350***
Average SSDI per Month in Two Years Before Intake	214	207	123***
Employment History			
Based on SSA Data			
Ever Used Work Incentive in Year Before Intake	22.5	25.0	13.5***
Employed (Data Available Only for SSI Recipients)			
One month before intake	17.8	17.8	10.1***
Two months before intake	17.8	16.0	9.9***
Three months before intake	16.5	15.3	9.9***
Never employed in two years before intake	66.8	68.8	84.4***
Average Earnings (Data Available Only for SSI Recipients) (Dollars)			
One month before intake	110	131	58***
Two months before intake	101	125	58***
Three months before intake	89	107	56**
Per month in two years before intake	80	85	44***
Based on SER Data			
Employed			
One year before intake year	50.5	48.0	31.1***
Two years before intake year	54.0	53.8	34.0***
Three years before intake year	52.8	50.5	34.1***
Four years before intake year	55.8	52.3	34.1***
Five years before intake year	55.8	55.0	34.1***
Average Earnings (Dollars)			
One year before intake year	1,795	2,796**	1,492
Two years before intake year	2,718	3,206	1,767***
Three years before intake year	2,515	3,182	1,851**
Four years before intake year	2,575	3,711**	1,892**
Five years before intake year	2,918	3,596	1,881***
Sample Size <sup>c</sup>	400	386	37,692

Source: All characteristics except annual earnings and employment are based on SSA administrative data. The SER provides annual earnings and employment.

Note: All dollar amounts are inflation-adjusted to 2004 dollars using the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

<sup>a</sup>Homeless people and people in nonmedical residential facilities are included in this total.

<sup>b</sup>In order to be counted in this total, Medicaid must have been paying more than 50 percent of the medical facility expenses.

<sup>c</sup>For some characteristics, the sample size may differ because of missing data.

SER = Summary Earnings Record; SSA = Social Security Administration; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

\*Significantly different from participants at the 0.10 level, two-tailed test.

\*\*Significantly different from participants at the 0.05 level, two-tailed test.

\*\*\*Significantly different from participants at the 0.01 level, two-tailed test.

TABLE C.11

BASELINE CHARACTERISTICS OF SSI AND CONCURRENT PARTICIPANTS AND  
COMPARISON GROUP MEMBERS IN VERMONT  
(Percentages Unless Otherwise Noted)

	Participants	Comparison Group	
		Selected	Potential
Demographic and Health Characteristics			
Disability			
Mental Disorder	60.1	63.0	42.0***
Musculoskeletal System	11.1	11.0	12.1
Neoplasms	0.7	0.8	1.2
Nervous System/Sense Organs	8.4	8.1	8.7
Mental Retardation	16.4	12.8*	21.4***
Other	13.9	13.5	19.3***
Missing	5.6	5.2	11.3***
Age at Intake			
Mean (Years)	38.7	39.0	40.8***
Younger than 25	10.6	11.0	11.3
25 to 39	39.0	41.9	33.0***
40 to 54	42.6	38.0	38.9*
55 or Older	6.4	7.6	14.2***
Male	46.6	48.5	45.5
White	92.4	91.2	71.7***
Education			
Mean, Among Those with Data (Years of Schooling)	12.0	12.1	10.5***
Less than High School	14.9	13.0	22.3***
High School	24.2	25.2	16.4***
Postsecondary, Associate’s Degree, or Vocational	8.6	9.6	3.5***
Bachelor’s Degree or Higher	5.6	5.1	1.2***
Missing	46.8	47.1	56.6***
Living Arrangements			
Lived Alone/in Own Household in Month Before Intake <sup>a</sup>	96.8	97.8	90.5***
Lived in Medical Facility at Any Point in Two Years Before Intake <sup>b</sup>	1.2	1.0	2.8**
Social Security Participation and Benefits			
Social Security Benefit Type at Intake			
SSI Only	39.7	37.3	60.2***
Concurrent	60.3	62.7	39.8***
Eligible for Medicaid in Month Before Intake	80.7	79.7	81.8
Length of Time Receiving Social Security			
Received SSI or SSDI Before Age 18	10.4	9.5	13.7**
Time on SSI or SSDI in Two Years Before Intake (Months)	20.3	20.7	21.4 ***

TABLE C.11 (continued)

	Participants	Comparison Group	
		Selected	Potential
Social Security Benefit Amount (Including Federal and State Payments) (Dollars)			
SSI in Month Before Intake	302	263**	381***
SSDI in Month Before Intake	344	360	206***
Average SSI per Month in Two Years Before Intake	279	253*	361***
Average SSDI per Month in Two Years Before Intake	280	295	182***
Employment History			
Based on SSA Data			
Ever Used Work Incentive in Year Before Intake	42.9	40.7	17.4***
Employed (Data Available Only for SSI Recipients)			
One month before intake	26.9	28.2	12.1***
Two months before intake	24.8	28.0	12.0***
Three months before intake	24.0	26.5	11.8***
Never employed in two years before intake	56.6	55.7	81.8***
Average Earnings (Data Available Only for SSI Recipients) (Dollars)			
One month before intake	186	208	66***
Two months before intake	177	209	66***
Three months before intake	179	197	64***
Per month in two years before intake	156	164	54***
Based on SER Data			
Employed			
One year before intake year	55.2	54.6	25.7***
Two years before intake year	55.6	54.6	28.1***
Three years before intake year	54.7	54.7	29.3***
Four years before intake year	54.7	54.4	29.6***
Five years before intake year	53.0	51.7	29.7***
Average Earnings (Dollars)			
One year before intake year	3,085	3,284	1,304***
Two years before intake year	3,672	3,634	1,577***
Three years before intake year	3,749	3,675	1,714***
Four years before intake year	3,781	3,576	1,757***
Five years before intake year	3,689	3,250	1,787***
Sample Size <sup>c</sup>	592	586	154,228

Source: All characteristics except annual earnings and employment are based on SSA administrative data. The SER provides annual earnings and employment.

Note: All dollar amounts are inflation-adjusted to 2004 dollars using the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

<sup>a</sup>Homeless people and people in nonmedical residential facilities are included in this total.

<sup>b</sup>In order to be counted in this total, Medicaid must have been paying more than 50 percent of the medical facility expenses.

<sup>c</sup>For some characteristics, the sample size may differ because of missing data.

SER = Summary Earnings Record; SSA = Social Security Administration; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

\*Significantly different from participants at the 0.10 level, two-tailed test.

\*\*Significantly different from participants at the 0.05 level, two-tailed test.

\*\*\*Significantly different from participants at the 0.01 level, two-tailed test.

TABLE C.12

BASELINE CHARACTERISTICS OF SSI AND CONCURRENT PARTICIPANTS AND  
COMPARISON GROUP MEMBERS IN WISCONSIN  
(Percentages Unless Otherwise Noted)

		Comparison Group	
	Participants	Selected	Potential
Demographic and Health Characteristics			
Disability			
Mental Disorder	36.0	35.1	35.8
Musculoskeletal System	7.0	8.3	11.3***
Neoplasms	0.6	2.6***	1.5*
Nervous System/Sense Organs	26.2	19.9**	10.0***
Mental Retardation	14.8	15.1	27.9***
Other	27.1	26.0	22.1***
Missing	8.1	7.2	11.0**
Age at Intake			
Mean (Years)	34.4	33.9	41.4***
Younger than 25	23.8	24.4	13.4***
25 to 39	42.1	45.4	30.9***
40 to 54	29.5	24.4*	34.0**
55 or Older	3.1	5.4*	19.4***
Male	58.3	59.0	46.2***
White	65.9	64.9	75.7***
Education			
Mean, Among Those with Data (Years of Schooling)	11.8	11.7	10.8***
Less than High School	18.8	18.5	17.7
High School	24.4	25.3	15.1***
Postsecondary, Associate’s Degree, or Vocational	7.0	6.8	2.6***
Bachelor’s Degree or Higher	3.1	2.2	0.8***
Missing	46.7	47.2	63.8***
Living Arrangements			
Lived Alone/in Own Household in Month Before Intake <sup>a</sup>	95.8	95.8	88.7***
Lived in Medical Facility at Any Point in Two Years Before Intake <sup>b</sup>	3.3	3.9	4.6
Social Security Participation and Benefits			
Social Security Benefit Type at Intake			
SSI Only	49.4	47.6	62.3***
Concurrent	50.6	52.4	37.7***
Eligible for Medicaid in Month Before Intake	88.2	87.8	48.7***
Length of Time Receiving Social Security			
Received SSI or SSDI Before Age 18	21.3	24.6	15.1***
Time on SSI or SSDI in Two Years Before Intake (Months)	21.97	21.976	20.834***



TABLE C.12 (continued)

	Participants	Comparison Group	
		Selected	Potential
Social Security Benefit Amount (Including Federal and State Payments) (Dollars)			
SSI in Month Before Intake	322	291**	310
SSDI in Month Before Intake	254	267	191***
Average SSI per Month in Two Years Before Intake	291	278	292
Average SSDI per Month in Two Years Before Intake	220	229	157***
Employment History			
Based on SSA Data			
Ever Used Work Incentive in Year Before Intake	31.5	25.5**	17.6***
Employed (Data Available Only for SSI Recipients)			
One month before intake	28.6	27.1	13.3***
Two months before intake	26.2	25.3	13.3***
Three months before intake	25.6	25.8	13.1***
Never employed in two years before intake	55.5	58.9	79.9***
Average Earnings (Data Available Only for SSI Recipients) (Dollars)			
One month before intake	161	185	65***
Two months before intake	137	161	65***
Three months before intake	133	168	63***
Per month in two years before intake	121	126	52***
Based on SER Data			
Employed			
One year before intake year	54.4	52.2	32.6***
Two years before intake year	52.0	53.7	35.4***
Three years before intake year	53.3	55.5	36.7***
Four years before intake year	52.4	53.9	36.7***
Five years before intake year	49.6	50.4	36.8***
Average Earnings (Dollars)			
One year before intake year	2,016	2,103	1,654*
Two years before intake year	2,636	2,507	2,063**
Three years before intake year	2,774	2,780	2,240*
Four years before intake year	2,630	2,567	2,289
Five years before intake year	2,555	2,381	2,310
Sample Size <sup>c</sup>	542	532	75,207

Source: Estimates of personal characteristics are based on SSA administrative data. The SER provides annual earnings and employment.

Note: All dollar amounts are inflation-adjusted to 2004 dollars using the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

<sup>a</sup>Homeless people and people in nonmedical residential facilities are included in this total.

<sup>b</sup>In order to be counted in this total, Medicaid must have been paying more than 50 percent of the medical facility expenses.

<sup>c</sup>For some characteristics, the sample size may differ because of missing data.

SER = Summary Earnings Record; SSA = Social Security Administration; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

\*Significantly different from participants at the 0.10 level, two-tailed test.

\*\*Significantly different from participants at the 0.05 level, two-tailed test.

\*\*\*Significantly different from participants at the 0.01 level, two-tailed test.

TABLE C.13

BASELINE CHARACTERISTICS OF SSDI PARTICIPANTS  
AND COMPARISON GROUP MEMBERS IN CALIFORNIA  
(Percentages Unless Otherwise Noted)

	Participants	Comparison Group	
		Selected	Potential
Demographic and Health Characteristics			
Disability			
Mental Disorder	89.1	100.0***	100.0***
Musculoskeletal System	0.0	1.6	0.6
Neoplasms	0.0	0.0	0.0
Nervous System/Sense Organs	1.6	0.0	0.0**
Mental Retardation	0.0	0.0	0.3
Other	1.6	0.0	0.9
Missing	7.8	0.0**	0.0***
Age at Intake			
Mean (Years)	44.5	45.2	48.4***
Younger than 25	0.0	1.6	0.9
25 to 39	31.3	23.4	16.7***
40 to 54	50.0	56.3	50.2
55 or Older	12.5	15.6	28.5***
Male	56.3	62.5	52.4
White	89.4	92.8	84.2
Education			
Mean, Among Those with Data (Years of Schooling)	13.0	13.2	12.6
Less than High School	4.7	6.3	7.7
High School	20.3	14.1	20.8
Postsecondary, Associate’s Degree, or Vocational	12.5	6.3	9.4
Bachelor’s Degree or Higher	6.3	7.8	6.4
Missing	56.3	65.6	55.5
Social Security Participation and Benefits			
Social Security Benefit Type at Intake			
SSDI Only	100.0	100.0	100.0
Social Security Benefit Amount (Dollars)			
Average Benefit Paid (Including Federal and State Payments)			
SSDI in month before intake	912	963	939
Average SSI per month in two years before intake	0	0	0
Average SSDI per month in two years before intake	857	901	860
Employment History			
Based on SER Data			
Employed			
One year before intake year	65.6	65.6	22.6***
Two years before intake year	56.3	56.3	28.3***
Three years before intake year	51.6	50.0	32.5***
Four years before intake year	51.6	43.8	38.2***
Five years before intake year	48.4	43.8	43.0**

TABLE C.13 (continued)

	Participants	Comparison Group	
		Selected	Potential
Average Earnings (Dollars)			
One year before intake year	2,538	3,913	2,478
Two years before intake year	3,503	4,728	4,178
Three years before intake year	4,044	4,224	5,808
Four years before intake year	3,953	5,731	7,563 *
Five years before intake year	5,963	6,302	9,375
<b>Sample Size<sup>c</sup></b>	<b>64</b>	<b>63</b>	<b>16,566</b>

Source: All characteristics except annual earnings and employment are based on SSA administrative data. The SER provides annual earnings and employment.

Notes: Because SSA data are more limited for SSDI-only beneficiaries than for SSI and concurrent beneficiaries, some characteristics, such as monthly measures of employment and earnings, are not included in this table.

All dollar amounts are inflation-adjusted to 2004 dollars using the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

<sup>a</sup>Homeless people and people in nonmedical residential facilities are included in this total.

<sup>b</sup>In order to be counted in this total, Medicaid must have been paying more than 50 percent of the medical facility expenses.

<sup>c</sup>For some characteristics, the sample size may differ because of missing data.

SER = Summary Earnings Record; SSA = Social Security Administration; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

\*Significantly different from participants at the 0.10 level, two-tailed test.

\*\*Significantly different from participants at the 0.05 level, two-tailed test.

\*\*\*Significantly different from participants at the 0.01 level, two-tailed test.

TABLE C.14

BASELINE CHARACTERISTICS OF SSDI PARTICIPANTS  
AND COMPARISON GROUP MEMBERS IN IOWA  
(Percentages Unless Otherwise Noted)

	Participants	Comparison Group	
		Selected	Potential
Demographic and Health Characteristics			
Disability			
Mental Disorder	46.7	47.8	22.7***
Musculoskeletal System	13.4	13.8	23.5***
Neoplasms	0.4	3.3**	3.1***
Nervous System/Sense Organs	15.2	10.9	11.2**
Mental Retardation	9.4	7.6	9.8
Other	14.9	18.8	26.6***
Missing	2.9	2.2	5.6*
Age at Intake			
Mean (Years)	44.7	45.2	51.7***
Younger than 25	1.8	1.8	0.9*
25 to 39	27.9	25.7	11.7***
40 to 54	49.6	51.8	38.0***
55 or Older	18.1	18.5	46.0***
Male	58.0	64.9*	57.9
White	98.8	99.2	98.3
Education			
Mean, Among Those with Data (Years of Schooling)	12.5	12.4	11.8***
Less than High School	6.5	6.2	12.2***
High School	38.0	39.9	36.2
Postsecondary, Associate’s Degree, or Vocational	11.6	10.5	5.9***
Bachelor’s Degree or Higher	7.6	4.7	3.5***
Missing	36.2	38.8	42.2**
Social Security Participation and Benefits			
Social Security Benefit Type at Intake			
SSDI Only	100.0	100.0	100.0
Social Security Benefit Amount (Dollars)			
Average Benefit Paid (Including Federal and State Payments)			
SSDI in month before intake	817	867**	854*
Average SSI per month in two years before intake	0	0	0
Average SSDI per month in two years before intake	740	770	782**
Employment History			
Based on SER Data			
Employed			
One year before intake year	64.1	63.4	31.5***
Two years before intake year	63.0	64.9	37.0***
Three years before intake year	64.5	65.6	41.8***
Four years before intake year	66.3	67.4	46.3***
Five years before intake year	67.8	68.5	50.9***

TABLE C.14 (continued)

	Participants	Comparison Group	
		Selected	Potential
Average Earnings (Dollars)			
One year before intake year	3,511	4,197	2,392***
Two years before intake year	5,196	6,618*	3,850**
Three years before intake year	6,764	8,987**	5,418*
Four years before intake year	7,634	9,813*	6,839
Five years before intake year	8,426	9,744	8,158
<b>Sample Size<sup>c</sup></b>	<b>276</b>	<b>270</b>	<b>14,878</b>

Source: All characteristics except annual earnings and employment are based on SSA administrative data. The SER provides annual earnings and employment.

Notes: Because SSA data are more limited for SSDI-only beneficiaries than for SSI and concurrent beneficiaries, some characteristics, such as monthly measures of employment and earnings, are not included in this table.

All dollar amounts are inflation-adjusted to 2004 dollars using the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

<sup>a</sup>Homeless people and people in nonmedical residential facilities are included in this total.

<sup>b</sup>In order to be counted in this total, Medicaid must have been paying more than 50 percent of the medical facility expenses.

<sup>c</sup>For some characteristics, the sample size may differ because of missing data.

SER = Summary Earnings Record; SSA = Social Security Administration; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

\*Significantly different from participants at the 0.10 level, two-tailed test.

\*\*Significantly different from participants at the 0.05 level, two-tailed test.

\*\*\*Significantly different from participants at the 0.01 level, two-tailed test.

TABLE C.15

BASELINE CHARACTERISTICS OF SSDI PARTICIPANTS  
AND COMPARISON GROUP MEMBERS IN MINNESOTA  
(Percentages Unless Otherwise Noted)

	Participants	Comparison Group	
		Selected	Potential
Demographic and Health Characteristics			
Disability			
Mental Disorder	56.6	58.5	26.7***
Musculoskeletal System	6.6	9.4	23.5***
Neoplasms	0.9	3.3*	2.9*
Nervous System/Sense Organs	12.3	8.5	10.9
Mental Retardation	7.1	9.4	7.5
Other	15.6	16.0	26.8***
Missing	2.8	2.4	4.3
Age at Intake			
Mean (Years)	43.3	42.7	51.7***
Younger than 25	2.4	2.8	1.0**
25 to 39	30.2	34.9	11.7***
40 to 54	53.3	50.5	37.2***
55 or Older	13.7	9.4	46.4***
Male	45.8	49.5	57.3***
White	96.3	95.6	91.8**
Education			
Mean, Among Those with Data (Years of Schooling)	13.5	13.4	11.9***
Less than High School	6.1	4.7	10.9**
High School	27.4	37.3**	27.6
Postsecondary, Associate’s Degree, or Vocational	18.4	10.8**	5.9***
Bachelor’s Degree or Higher	22.2	21.2	3.6***
Missing	25.9	25.9	51.9***
Social Security Participation and Benefits			
Social Security Benefit Type at Intake			
SSDI Only	100.0	100.0	100.0
Social Security Benefit Amount (Dollars)			
Average Benefit Paid (Including Federal and State Payments)			
SSDI in month before intake	863	896	944***
Average SSI per month in two years before intake	0	0	0
Average SSDI per month in two years before intake	785	811	866***
Employment History			
Based on SER Data			
Employed			
One year before intake year	60.8	61.3	30.2***
Two years before intake year	59.9	57.5	36.0***
Three years before intake year	68.4	65.6	41.6***
Four years before intake year	66.0	67.5	46.4***
Five years before intake year	67.9	69.8	51.0***

TABLE C.15 (continued)

	Participants	Comparison Group	
		Selected	Potential
Average Earnings (Dollars)			
One year before intake year	3,219	4,769**	2,436
Two years before intake year	5,757	6,725	4,341*
Three years before intake year	8,648	9,050	6,393**
Four years before intake year	9,776	9,752	8,248
Five years before intake year	10,171	9,911	9,957
<b>Sample Size<sup>c</sup></b>	<b>212</b>	<b>211</b>	<b>121,941</b>

Source: All characteristics except annual earnings and employment are based on SSA administrative data. The SER provides annual earnings and employment.

Notes: Because SSA data are more limited for SSDI-only beneficiaries than for SSI and concurrent beneficiaries, some characteristics, such as monthly measures of employment and earnings, are not included in this table.

All dollar amounts are inflation-adjusted to 2004 dollars using the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

<sup>a</sup>Homeless people and people in nonmedical residential facilities are included in this total.

<sup>b</sup>In order to be counted in this total, Medicaid must have been paying more than 50 percent of the medical facility expenses.

<sup>c</sup>For some characteristics, the sample size may differ because of missing data.

SER = Summary Earnings Record; SSA = Social Security Administration; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

\*Significantly different from participants at the 0.10 level, two-tailed test.

\*\*Significantly different from participants at the 0.05 level, two-tailed test.

\*\*\*Significantly different from participants at the 0.01 level, two-tailed test.

TABLE C.16

BASELINE CHARACTERISTICS OF SSDI PARTICIPANTS AND  
COMPARISON GROUP MEMBERS IN NEW HAMPSHIRE  
(Percentages Unless Otherwise Noted)

	Participants	Comparison Group	
		Selected	Potential
Demographic and Health Characteristics			
Disability			
Mental Disorder	69.5	73.3	37.1***
Musculoskeletal System	9.5	3.8	19.3**
Neoplasms	0.0	1.9	2.6*
Nervous System/Sense Organs	4.8	7.6	11.4**
Mental Retardation	2.9	1.9	7.0*
Other	17.1	8.6*	20.2
Missing	0.0	6.7***	4.2**
Age at Intake			
Mean (Years)	45.9	45.9	49.8***
Younger than 25	1.0	0.0	1.0
25 to 39	20.0	25.7	16.4
40 to 54	62.9	55.2	40.1***
55 or Older	15.2	14.3	38.2***
Male	52.4	55.2	51.3
White	98.9	98.9	97.6
Education			
Mean, Among Those with Data (Years of Schooling)	13.0	12.9	12.2***
Less than High School	8.6	9.5	13.7
High School	24.8	26.7	29.4
Postsecondary, Associate’s Degree, or Vocational	13.3	7.6	9.6
Bachelor’s Degree or Higher	16.2	11.4	7.7***
Missing	37.1	44.8	39.7
Social Security Participation and Benefits			
Social Security Benefit Type at Intake			
SSDI Only	100.0	100.0	100.0
Social Security Benefit Amount (Dollaras)			
Average Benefit Paid (Including Federal and State Payments)			
SSDI in month before intake	820	809	898**
Average SSI per month in two years before intake	0	0	0
Average SSDI per month in two years before intake	774	780	839**
Employment History			
Based on SER Data			
Employed			
One year before intake year	53.3	50.5	30.4***
Two years before intake year	55.2	48.6	36.1***
Three years before intake year	52.4	50.5	41.4**
Four years before intake year	55.2	62.9	45.4**
Five years before intake year	67.6	67.6	50.4***



TABLE C.16 (continued)

	Participants	Comparison Group	
		Selected	Potential
Average Earnings (Dollars)			
One year before intake year	2,963	2,360	2,683
Two years before intake year	3,525	3,511	4,138
Three years before intake year	4,039	4,747	5,900
Four years before intake year	5,355	5,842	7,558
Five years before intake year	6,761	6,162	8,905
<b>Sample Size<sup>c</sup></b>	<b>105</b>	<b>100</b>	<b>3,190</b>

Source: All characteristics except annual earnings and employment are based on SSA administrative data. The SER provides annual earnings and employment.

Notes: Because SSA data are more limited for SSDI-only beneficiaries than for SSI and concurrent beneficiaries, some characteristics, such as monthly measures of employment and earnings, are not included in this table.

All dollar amounts are inflation-adjusted to 2004 dollars using the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

<sup>a</sup>Homeless people and people in nonmedical residential facilities are included in this total.

<sup>b</sup>In order to be counted in this total, Medicaid must have been paying more than 50 percent of the medical facility expenses.

<sup>c</sup>For some characteristics, the sample size may differ because of missing data.

SER = Summary Earnings Record; SSA = Social Security Administration; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

\*Significantly different from participants at the 0.10 level, two-tailed test.

\*\*Significantly different from participants at the 0.05 level, two-tailed test.

\*\*\*Significantly different from participants at the 0.01 level, two-tailed test.

TABLE C.17

BASELINE CHARACTERISTICS OF SSDI PARTICIPANTS AND  
COMPARISON GROUP MEMBERS IN NEW MEXICO  
(Percentages Unless Otherwise Noted)

	Participants	Comparison Group	
		Selected	Potential
Demographic and Health Characteristics			
Disability			
Mental Disorder	37.6	43.1	22.4***
Musculoskeletal System	18.0	14.7	29.7***
Neoplasms	0.0	2.3***	2.4***
Nervous System/Sense Organs	14.4	12.4	9.8***
Mental Retardation	7.2	7.5	4.5**
Other	24.5	19.3	29.7**
Missing	2.9	3.3	3.4
Age at Intake			
Mean (Years)	44.9	44.6	52.7***
Younger than 25	2.9	1.6	0.7***
25 to 39	25.5	31.4	9.5***
40 to 54	49.7	49.0	35.8***
55 or Older	17.6	16.3	50.2***
Male	53.6	55.6	60.8**
White	86.0	85.7	92.4***
Education			
Mean, Among Those with Data (Years of Schooling)	12.8	12.6	11.8***
Less than High School	7.2	10.8	13.3***
High School	27.1	25.2	25.0
Postsecondary, Associate’s Degree, or Vocational	15.4	15.0	7.0***
Bachelor’s Degree or Higher	9.5	6.9	3.4***
Missing	40.8	42.2	51.2***
Social Security Participation and Benefits			
Social Security Benefit Type at Intake			
SSDI Only	100.0	100.0	100.0
Social Security Benefit Amount (Dollars)			
Average Benefit Paid (Including Federal and State Payments)			
SSDI in month before intake	829	854	893***
Average SSI per month in two years before intake	0	0	0
Average SSDI per month in two years before intake	774	804	816**
Employment History			
Based on SER Data			
Employed			
One year before intake year	44.8	39.5	19.6***
Two years before intake year	41.5	37.3	25.4***
Three years before intake year	45.1	38.9	31.3***
Four years before intake year	50.7	49.7	37.1***
Five years before intake year	58.2	55.2	42.9***

TABLE C.17 (continued)

	Participants	Comparison Group	
		Selected	Potential
Average Earnings (Dollars)			
One year before intake year	2,554	2,230	1,906
Two years before intake year	3,239	2,854	3,358
Three years before intake year	4,848	4,198	5,014
Four years before intake year	6,142	6,177	6,561
Five years before intake year	7,754	8,359	8,094
<b>Sample Size<sup>c</sup></b>	<b>306</b>	<b>301</b>	<b>36,946</b>

Source: All characteristics except annual earnings and employment are based on SSA administrative data. The SER provides annual earnings and employment.

Notes: Because SSA data are more limited for SSDI-only beneficiaries than for SSI and concurrent beneficiaries, some characteristics, such as monthly measures of employment and earnings, are not included in this table.

All dollar amounts are inflation-adjusted to 2004 dollars using the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

<sup>a</sup>Homeless people and people in nonmedical residential facilities are included in this total.

<sup>b</sup>In order to be counted in this total, Medicaid must have been paying more than 50 percent of the medical facility expenses.

<sup>c</sup>For some characteristics, the sample size may differ because of missing data.

SER = Summary Earnings Record; SSA = Social Security Administration; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

\*Significantly different from participants at the 0.10 level, two-tailed test.

\*\*Significantly different from participants at the 0.05 level, two-tailed test.

\*\*\*Significantly different from participants at the 0.01 level, two-tailed test.

TABLE C.18

BASELINE CHARACTERISTICS OF SSDI PARTICIPANTS AND  
COMPARISON GROUP MEMBERS IN NORTH CAROLINA  
(Percentages Unless Otherwise Noted)

	Participants	Comparison Group	
		Selected	Potential
Demographic and Health Characteristics			
Disability			
Mental Disorder	46.8	46.2	19.2***
Musculoskeletal System	4.5	14.1***	26.2***
Neoplasms	0.6	3.2	2.7
Nervous System/Sense Organs	21.2	9.0***	9.1***
Mental Retardation	4.5	4.5	5.8
Other	22.4	26.3	34.9***
Missing	2.6	0.6	5.4
Age at Intake			
Mean (Years)	43.7	45.2	52.1***
Younger than 25	1.9	0.0*	0.8*
25 to 39	29.5	28.2	11.6***
40 to 54	55.1	53.8	35.4***
55 or Older	12.2	17.3	48.5***
Male	48.1	47.4	52.1
White	53.4	54.0	84.0***
Education			
Mean, Among Those with Data (Years of Schooling)	13	13.0	11.1***
Less than High School	5.8	3.8	19.5***
High School	28.8	28.8	22.9*
Postsecondary, Associate’s Degree, or Vocational	9.6	12.2	4.3***
Bachelor’s Degree or Higher	10.3	9.0	2.6***
Missing	45.5	46.2	50.7
Social Security Participation and Benefits			
Social Security Benefit Type at Intake			
SSDI Only	100.0	100.0	100.0
Social Security Benefit Amount (Dollars)			
Average Benefit Paid (Including Federal and State Payments)			
SSDI in month before intake	833	895**	854
Average SSI per month in two years before intake	0	0	0
Average SSDI per month in two years before intake	765	830**	772
Employment History			
Based on SER Data			
Employed			
One year before intake year	53.8	55.8	19.6***
Two years before intake year	55.8	62.2	27.0***
Three years before intake year	64.7	68.6	33.9***
Four years before intake year	63.5	63.5	40.3***
Five years before intake year	67.9	64.1	47.1***

TABLE C.18 (continued)

	Participants	Comparison Group	
		Selected	Potential
Average Earnings (Dollars)			
One year before intake year	3,674	5,655	1,951***
Two years before intake year	5,648	7,905	3,735**
Three years before intake year	7,398	9,807	5,523*
Four years before intake year	8,876	10,338	7,288
Five years before intake year	10,062	12,515	8,964
<b>Sample Size<sup>c</sup></b>	<b>156</b>	<b>148</b>	<b>15,470</b>

Source: All characteristics except annual earnings and employment are based on SSA administrative data. The SER provides annual earnings and employment.

Notes: Because SSA data are more limited for SSDI-only beneficiaries than for SSI and concurrent beneficiaries, some characteristics, such as monthly measures of employment and earnings, are not included in this table.

All dollar amounts are inflation-adjusted to 2004 dollars using the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

<sup>a</sup>The homeless and those in nonmedical residential facilities are included in this total.

<sup>b</sup>In order to be counted in this total, Medicaid must have been paying more than 50 percent of the medical facility expenses.

<sup>c</sup>For some characteristics, the sample size may differ because of missing data.

SER = Summary Earnings Record; SSA = Social Security Administration; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

\*Significantly different from participants at the 0.10 level, two-tailed test.

\*\*Significantly different from participants at the 0.05 level, two-tailed test.

\*\*\*Significantly different from participants at the 0.01 level, two-tailed test.

TABLE C.19

BASELINE CHARACTERISTICS OF SSDI PARTICIPANTS  
AND COMPARISON GROUP MEMBERS IN OKLAHOMA  
(Percentages Unless Otherwise Noted)

	Participants	Comparison Group	
		Selected	Potential
Demographic and Health Characteristics			
Disability			
Mental Disorder	88.0	100.0***	100.0***
Musculoskeletal System	4.8	0.0*	1.0***
Neoplasms	0.0	0.0	0.0
Nervous System/Sense Organs	1.2	0.0	0.5
Mental Retardation	2.4	3.6	1.0
Other	2.4	0.0	1.2
Missing	2.4	0.0	0.0***
Age at Intake			
Mean (Years)	45.1	45.5	48.9***
Younger than 25	1.2	2.4	1.7
25 to 39	20.5	22.9	16.0
40 to 54	69.9	57.8	46.7***
55 or Older	7.2	14.5	31.6***
Male	44.6	49.4	60.2***
White	69.0	70.2	91.9***
Education			
Mean, Among Those with Data (Years of Schooling)	12.7	12.6	11.9***
Less than High School	8.4	7.2	11.7
High School	26.5	33.7	24.4
Postsecondary, Associate’s Degree, or Vocational	15.7	13.3	6.1***
Bachelor’s Degree or Higher	7.2	4.8	3.0**
Missing	42.2	41.0	54.8**
Social Security Participation and Benefits			
Social Security Benefit Type at Intake			
SSDI Only	100.0	100.0	100.0
Social Security Benefit Amount (Dollars)			
Average Benefit Paid (Including Federal and State Payments)			
SSDI in month before intake	835	784	822
Average SSI per month in two years before intake	0	0	0
Average SSDI per month in two years before intake	718	702	769
Employment History			
Based on SER Data			
Employed			
One year before intake year	37.3	39.8	18.9***
Two years before intake year	41.0	41.0	24.2***
Three years before intake year	39.8	38.6	28.2**
Four years before intake year	39.8	37.3	33.1
Five years before intake year	53.0	48.2	39.0**

TABLE C.19 (continued)

	Participants	Comparison Group	
		Selected	Potential
Average Earnings (Dollars)			
One year before intake year	3,212	1,921	1,450***
Two years before intake year	5,145	3,917	2,532***
Three years before intake year	4,638	5,906	3,703
Four years before intake year	5,359	5,165	4,754
Five years before intake year	7,367	6,332	6,027
<b>Sample Size<sup>c</sup></b>	<b>83</b>	<b>66</b>	<b>2,728</b>

Source: All characteristics except annual earnings and employment are based on SSA administrative data. The SER provides annual earnings and employment.

Notes: Because SSA data are more limited for SSDI-only beneficiaries than for SSI and concurrent beneficiaries, some characteristics, such as monthly measures of employment and earnings, are not included in this table.

All dollar amounts are inflation-adjusted to 2004 dollars using the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

<sup>a</sup>Homeless people and people in nonmedical residential facilities are included in this total.

<sup>b</sup>In order to be counted in this total, Medicaid must have been paying more than 50 percent of the medical facility expenses.

<sup>c</sup>For some characteristics, the sample size may differ because of missing data.

SER = Summary Earnings Record; SSA = Social Security Administration; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

\*Significantly different from participants at the 0.10 level, two-tailed test.

\*\*Significantly different from participants at the 0.05 level, two-tailed test.

\*\*\*Significantly different from participants at the 0.01 level, two-tailed test.

TABLE C.20

BASELINE CHARACTERISTICS OF SSDI PARTICIPANTS  
AND COMPARISON GROUP MEMBERS IN OHIO  
(Percentages Unless Otherwise Noted)

	Participants	Comparison Group	
		Selected	Potential
Demographic and Health Characteristics			
Disability			
Mental Disorder	84.9	85.8	31.7***
Musculoskeletal System	2.2	3.0	17.9***
Neoplasms	0.0	0.0	2.4**
Nervous System/Sense Organs	3.9	3.9	9.2***
Mental Retardation	2.6	1.7	8.6***
Other	6.5	4.7	25.3***
Missing	3.4	3.0	7.1**
Age at Intake			
Mean (Years)	43.6	43.7	51.2***
Younger than 25	0.0	0.4	1.0
25 to 39	33.6	33.2	12.8***
40 to 54	53.4	55.2	38.5***
55 or Older	9.9	8.2	44.3***
Male	54.3	48.7	57.3
White	82.4	81.6	75.2***
Education			
Mean, Among Those with Data (Years of Schooling)	12.8	12.5	11.7***
Less than High School	6.0	8.6	15.0***
High School	34.1	34.5	27.9**
Postsecondary, Associate’s Degree, or Vocational	12.5	11.6	5.9***
Bachelor’s Degree or Higher	9.5	7.3	3.5***
Missing	37.9	37.9	47.7***
Social Security Participation and Benefits			
Social Security Benefit Type at Intake			
SSDI Only	100.0	100.0	100.0
Social Security Benefit Amount (Dollars)			
Average Benefit Paid (Including Federal and State Payments)			
SSDI in month before intake	788	807	889***
Average SSI per month in two years before intake	0	0	0
Average SSDI per month in two years before intake	745	760	824***
Employment History			
Based on SER Data			
Employed			
One year before intake year	52.6	52.6	27.7***
Two years before intake year	49.1	47.0	32.7***
Three years before intake year	53.9	50.0	37.3***
Four years before intake year	54.3	53.4	41.7***
Five years before intake year	58.2	58.6	45.9***



TABLE C.20 (continued)

	Participants	Comparison Group	
		Selected	Potential
Average Earnings (Dollars)			
One year before intake year	2,422	2,794	2,222
Two years before intake year	3,715	3,493	3,579
Three years before intake year	4,748	4,609	5,078
Four years before intake year	5,583	6,451	6,479
Five years before intake year	6,722	7,557	7,840
<b>Sample Size<sup>c</sup></b>	<b>232</b>	<b>228</b>	<b>34,393</b>

Source: All characteristics except annual earnings and employment are based on SSA administrative data. The SER provides annual earnings and employment.

Notes: Because SSA data are more limited for SSDI-only beneficiaries than for SSI and concurrent beneficiaries, some characteristics, such as monthly measures of employment and earnings, are not included in this table.

All dollar amounts are inflation-adjusted to 2004 dollars using the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

<sup>a</sup>Homeless people and people in nonmedical residential facilities are included in this total.

<sup>b</sup>In order to be counted in this total, Medicaid must have been paying more than 50 percent of the medical facility expenses.

<sup>c</sup>For some characteristics, the sample size may differ because of missing data.

SER = Summary Earnings Record; SSA = Social Security Administration; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

\*Significantly different from participants at the 0.10 level, two-tailed test.

\*\*Significantly different from participants at the 0.05 level, two-tailed test.

\*\*\*Significantly different from participants at the 0.01 level, two-tailed test.

TABLE C.21

BASELINE CHARACTERISTICS OF SSDI PARTICIPANTS  
AND COMPARISON GROUP MEMBERS IN VERMONT  
(Percentages Unless Otherwise Noted)

		Comparison Group	
	Participants	Selected	Potential
Demographic and Health Characteristics			
Disability			
Mental Disorder	56.1	55.1	27.7***
Musculoskeletal System	10.2	13.9*	28.2***
Neoplasms	1.5	1.7	2.5
Nervous System/Sense Organs	8.5	8.7	10.4
Mental Retardation	5.4	6.7	6.4
Other	17.9	15.4	23.3***
Missing	2.7	1.9	4.0
Age at Intake			
Mean (Years)	44.3	44.0	48.3***
Younger than 25	1.2	0.2*	1.0
25 to 39	26.0	31.2*	16.4***
40 to 54	59.0	54.1	47.6***
55 or Older	10.8	12.3	30.3***
Male	54.9	60.9*	56.3
White	97.5	96.4	90.7***
Education			
Mean, Among Those with Data (Years of Schooling)	12.8	12.7	11.8***
Less than High School	8.3	8.9	13.2***
High School	34.5	32.6	26.9***
Postsecondary, Associate’s Degree, or Vocational	10.2	13.9*	7.6**
Bachelor’s Degree or Higher	11.9	9.4	4.4***
Missing	35.1	35.1	47.8***
Social Security Participation and Benefits			
Social Security Benefit Type at Intake			
SSDI Only	100.0	100.0	100.0
Social Security Benefit Amount (Dollars)			
Average Benefit Paid (Including Federal and State Payments)			
SSDI in month before intake	834	919***	890***
Average SSI per month in two years before intake	0	0	0
Average SSDI per month in two years before intake	743	830***	813***
Employment History			
Based on SER Data			
Employed			
One year before intake year	58.6	59.7	25.3***
Two years before intake year	56.1	55.7	30.8***
Three years before intake year	58.2	58.8	36.4***
Four years before intake year	64.7	65.5	41.6***
Five years before intake year	65.7	67.8	46.7***

TABLE C.21 (continued)

	Participants	Comparison Group	
		Selected	Potential
Average Earnings (Dollars)			
One year before intake year	3,746	5,736***	2,563***
Two years before intake year	5,698	7,348**	4,199***
Three years before intake year	6,729	9,332***	5,949
Four years before intake year	7,989	11,087***	7,589
Five years before intake year	8,774	12,801***	9,159
<b>Sample Size<sup>c</sup></b>	<b>481</b>	<b>478</b>	<b>133,632</b>

Source: All characteristics except annual earnings and employment are based on SSA administrative data. The SER provides annual earnings and employment.

Notes: Because SSA data are more limited for SSDI-only beneficiaries than for SSI and concurrent beneficiaries, some characteristics, such as monthly measures of employment and earnings, are not included in this table.

All dollar amounts are inflation-adjusted to 2004 dollars using the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

<sup>a</sup>Homeless people and people in nonmedical residential facilities are included in this total.

<sup>b</sup>In order to be counted in this total, Medicaid must have been paying more than 50 percent of the medical facility expenses.

<sup>c</sup>For some characteristics, the sample size may differ because of missing data.

SER = Summary Earnings Record; SSA = Social Security Administration; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

\*Significantly different from participants at the 0.10 level, two-tailed test.

\*\*Significantly different from participants at the 0.05 level, two-tailed test.

\*\*\*Significantly different from participants at the 0.01 level, two-tailed test.

TABLE C.22

BASELINE CHARACTERISTICS OF SSDI PARTICIPANTS  
AND COMPARISON GROUP MEMBERS IN WISCONSIN  
(Percentages Unless Otherwise Noted)

	Participants	Comparison Group	
		Selected	Potential
Demographic and Health Characteristics			
Disability			
Mental Disorder	28.3	33.8	25.7
Musculoskeletal System	11.8	17.6**	22.8***
Neoplasms	1.4	3.3*	2.8*
Nervous System/Sense Organs	26.1	15.7***	10.5***
Mental Retardation	4.7	5.5	8.3**
Other	31.0	22.0***	27.3
Missing	3.8	4.1	5.2
Age at Intake			
Mean (Years)	42.8	42.4	51.1***
Younger than 25	3.0	1.6	1.2***
25 to 39	30.5	36.0	13.3***
40 to 54	55.8	52.5	37.5***
55 or Older	8.5	8.0	44.6***
Male	60.2	62.9	57.7
White	86.7	86.1	92.7***
Education			
Mean, Among Those with Data (Years of Schooling)	13.1	12.9	11.8***
Less than High School	6.9	5.2	11.3***
High School	30.8	37.6*	24.8***
Postsecondary, Associate's Degree, or Vocational	12.6	13.7	5.5***
Bachelor's Degree or Higher	14.3	9.1**	2.9***
Missing	35.4	34.3	55.5***
Social Security Participation and Benefits			
Social Security Benefit Type at Intake			
SSDI Only	100.0	100.0	100.0
Social Security Benefit Amount (Dollars)			
Average Benefit Paid (Including Federal and State Payments)			
SSDI in month before intake	864	892	907**
Average SSI per month in two years before intake	0	0	0
Average SSDI per month in two years before intake	791	807	829**
Employment History			
Based on Summary Earnings Record Data			
Employed			
One year before intake year	49.2	47.8	29.7***
Two years before intake year	57.7	54.7	35.2***
Three years before intake year	60.2	64.6	40.5***
Four years before intake year	65.9	66.5	45.5***
Five years before intake year	69.5	71.4	50.1***

TABLE C.22 (continued)

	Participants	Comparison Group	
		Selected	Potential
Average Earnings (Dollars)			
One year before intake year	3,126	3,932	2,502
Two years before intake year	5,985	6,223	4,232***
Three years before intake year	7,680	9,015	6,001**
Four years before intake year	9,178	10,832	7,718*
Five years before intake year	10,606	13,071**	9,320
<b>Sample Size<sup>c</sup></b>	<b>364</b>	<b>357</b>	<b>102,513</b>

Source: All characteristics except annual earnings and employment are based on SSA administrative data. The Summary Earnings Record provides annual earnings and employment.

Notes: Because SSA data are more limited for SSDI-only beneficiaries than for SSI and concurrent beneficiaries, some characteristics, such as monthly measures of employment and earnings, are not included in this table.

All dollar amounts are inflation-adjusted to 2004 dollars using the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

<sup>a</sup>The homeless and those in nonmedical residential facilities are included in this total.

<sup>b</sup>In order to be counted in this total, Medicaid must have been paying more than 50 percent of the medical facility expenses.

<sup>c</sup>For some characteristics, the sample size may differ because of missing data.

SER = Summary Earnings Record; SSA = Social Security Administration; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

\*Significantly different from participants at the 0.10 level, two-tailed test.

\*\*Significantly different from participants at the 0.05 level, two-tailed test.

\*\*\*Significantly different from participants at the 0.01 level, two-tailed test.



## **APPENDIX D**

### **IMPACT ESTIMATES FOR STATE PROJECTS WITH RANDOMIZED DESIGNS AND MINIMUM DETECTABLE DIFFERENCES**





TABLE D.1

## IMPACT ESTIMATES: NEW YORK—SSI AND CONCURRENT

	Benefits Counseling Only		Benefits Counseling and Employment Services	
	Treatment	Control	Treatment	Control
<b>SER Outcomes</b>				
<b>Employment in Year After Randomization Year Relative to Year Before</b>				
Unadjusted				
Any employment in year after (percent)	24.8*	21.3	28.6***	21.3
Any employment in year before (percent)	26.4	24.4	26.2	24.4
Difference over time (percentage points)	-1.6	-3.1	2.5***	-3.1
D-in-D overall (percentage points)	1.5	—	5.5***	—
D-in-D per participant (percentage points)	<b>5.1</b>	—	<b>17.0***</b>	—
Regression Adjusted				
D-in-D overall (percentage points)	2.6	—	5.5***	—
D-in-D per participant (percentage points)	<b>8.8</b>	—	<b>17.0***</b>	—
<b>Earnings in Year After Randomization Year Relative to Two Years Before</b>				
Unadjusted				
Earnings in year after	\$1,259	\$1,449	\$1,464	\$1,449
Annual earnings in two years before	\$998	\$801	\$973	\$801
Difference over time	\$261**	\$648	\$491	\$648
D-in-D overall	\$-387**	—	\$-157	—
D-in-D per participant	<b>\$-1,309**</b>	—	<b>\$-486</b>	—
Regression Adjusted				
D-in-D overall	\$-343**	—	\$-118	—
D-in-D per participant	<b>\$-1,161**</b>	—	<b>\$-367</b>	—
<b>Earnings in Year After Randomization Year Relative to Year Before</b>				
Unadjusted				
Earnings in year after	\$1,259	\$1,449	\$1,464	\$1,449
Earnings in year before	\$1,063	\$880	\$1,063	\$880
Difference over time	\$195**	\$569	\$401	\$569
D-in-D overall	\$-374**	—	\$-168	—
D-in-D per participant	<b>\$-1,265**</b>	—	<b>\$-520</b>	—
Regression Adjusted				
D-in-D overall	\$-319*	—	\$-147	—
D-in-D per participant	<b>\$-1,080*</b>	—	<b>\$-455</b>	—
<b>Number Randomized Through 2001</b>	<b>937</b>	<b>914</b>	<b>932</b>	<b>914</b>

TABLE D.1 (continued)

	Benefits Counseling Only		Benefits Counseling and Employment Services	
	Treatment	Control	Treatment	Control
<b>SSA Data Outcome: Employment in Six Months After Randomization Relative to Six Months Before</b>				
Unadjusted				
Any employment in six months after (percent)	8.9	8.6	9.8	8.6
Any employment in six months before (percent)	7.9	7.5	8.3	7.5
Difference over time (percentage points)	0.7	0.8	1.5	0.8
D-in-D overall (percentage points)	-0.1	—	0.7	—
D-in-D per participant (percentage points)	<b>-0.3</b>	—	<b>2.2</b>	—
Regression Adjusted				
D-in-D overall (percentage points)	0.0	—	0.8	—
D-in-D per participant (percentage points)	<b>0.0</b>	—	<b>2.5</b>	—
<b>Number Randomized Through February 2003</b>	<b>2,215</b>	<b>1,745</b>	<b>2,043</b>	<b>1,745</b>

Source: Calculations conducted by Mathematica Policy Research, Inc. on SSA administrative and SER data.

D-in-D = difference-in-difference; SER = Summary Earnings Record; SSA = Social Security Administration; SSI = Supplemental Security Income.

\*Impact significantly different from zero at the 0.10 level.

\*\*Impact significantly different from zero at the 0.05 level.

\*\*\*Impact significantly different from zero at the 0.01 level.

TABLE D.2

## IMPACT ESTIMATES: NEW YORK BUFFALO SITE —SSI AND CONCURRENT

	Benefits Counseling Only		Benefits Counseling and Employment Services	
	Treatment	Control	Treatment	Control
<b>SER Outcomes</b>				
<b>Employment in Year After Randomization Year Relative to Year Before</b>				
Unadjusted				
Any employment in year after (percent)	32.8	28.4	36.3*	28.4
Any employment in year before (percent)	30.1	27.1	31.9	27.1
Difference over time (percentage points)	2.7	1.3	4.4	1.3
D-in-D overall (percentage points)	1.4	—	3.0	—
D-in-D per participant (percentage points)	<b>3.8</b>	—	<b>7.7</b>	—
Regression Adjusted				
D-in-D overall (percentage points)	1.7	—	3.9	—
D-in-D per participant (percentage points)	<b>4.6</b>	—	<b>10.0</b>	—
<b>Earnings in Year After Randomization Year Relative to Two Years Before</b>				
Unadjusted				
Earnings in year after	\$1,380	\$1,394	\$1,438	\$1,394
Annual earnings in two years before	\$1,051	\$752	\$1,166	\$752
Difference over time	\$329	\$641	\$272	\$641
D-in-D overall	\$-313	—	\$-370	—
D-in-D per participant	<b>\$-844</b>	—	<b>\$-948</b>	—
Regression Adjusted				
D-in-D overall	\$-166	—	\$-261	—
D-in-D per participant	<b>\$-448</b>	—	<b>\$-668</b>	—
<b>Earnings in Year After Randomization Year Relative to Year Before</b>				
Unadjusted				
Earnings in year after	\$1,380	\$1,394	\$1,438	\$1,394
Earnings in year before	\$1,075	\$773	\$1,230	\$773
Difference over time	\$305	\$620	\$208	\$620
D-in-D overall	\$-315	—	\$-412	—
D-in-D per participant	<b>\$-850</b>	—	<b>\$-1,055</b>	—
Regression Adjusted				
D-in-D overall	\$-175	—	\$-293	—
D-in-D per participant	<b>\$-473</b>	—	<b>\$-750</b>	—
<b>Number Randomized Through 2001</b>	<b>259</b>	<b>225</b>	<b>251</b>	<b>225</b>

TABLE D.2 (continued)

	Benefits Counseling Only		Benefits Counseling and Employment Services	
	Treatment	Control	Treatment	Control
<b>SSA Data Outcome: Employment in Six Months After Randomization Relative to Six Months Before</b>				
Unadjusted				
Any employment in six months after (percent)	16.9	14.7	17.2	14.7
Any employment in six months before (percent)	12.9	11.3	13.2	11.3
Difference over time (percentage points)	2.8	0.4	4.1	0.4
D-in-D overall (percentage points)	2.4	—	3.6	—
D-in-D per participant (percentage points)	<b>6.5</b>	—	<b>9.2</b>	—
Regression Adjusted				
D-in-D overall (percentage points)	2.2	—	3.2	—
D-in-D per participant (percentage points)	<b>5.9</b>	—	<b>8.2</b>	—
<b>Number Randomized Through February 2003</b>	<b>319</b>	<b>238</b>	<b>296</b>	<b>238</b>

Source: Calculations conducted by Mathematica Policy Research, Inc. on SSA administrative and SER data.

D-in-D = difference-in-difference; SER = Summary Earnings Record; SSA = Social Security Administration; SSI = Supplemental Security Income.

\*Impact significantly different from zero at the 0.10 level.

\*\*Impact significantly different from zero at the 0.05 level.

\*\*\*Impact significantly different from zero at the 0.01 level.

TABLE D.3  
IMPACT ESTIMATES: OKLAHOMA

	SSI and Concurrent	
	Treatment	Control
<b>SER Outcomes</b>		
<b>Employment in Year After Randomization Year Relative to Year Before</b>		
Unadjusted		
Any employment in year after (percent)	14.2	11.7
Any employment in year before (percent)	21.0	21.1
Difference over time (percentage points)	-6.7	-9.4
D-in-D overall (percentage points)	2.6	—
D-in-D per participant (percentage points)	<b>11.9</b>	—
Regression Adjusted		
D-in-D overall (percentage points)	3.7	—
D-in-D per participant (percentage points)	<b>17.0</b>	—
<b>Earnings in Year After Randomization Year Relative to Two Years Before</b>		
Unadjusted		
Earnings in year after	\$514	\$393
Annual earnings in two years before	\$690	\$549
Difference over time	\$-177	\$-156
D-in-D overall	\$-21	—
D-in-D per participant	<b>\$-96</b>	—
Regression Adjusted		
D-in-D overall	\$9	—
D-in-D per participant	<b>\$43</b>	—
<b>Earnings in Year After Randomization Relative to Year Before</b>		
Unadjusted		
Earnings in year after	\$514	\$393
Annual earnings in year before	\$603	\$503
Difference over time	\$-90	\$-110
D-in-D overall	\$20	—
D-in-D per participant	<b>\$92</b>	—
Regression Adjusted		
D-in-D overall	\$98	—
D-in-D per participant	<b>\$451</b>	—
<b>Number Randomized Through 2001</b>	<b>1,440</b>	<b>256</b>

TABLE D.3 (continued)

	SSI and Concurrent	
	Treatment	Control
<b>SSA Data Outcome: Employment in Six Months After Randomization Relative to Six Months Before</b>		
Unadjusted		
Earnings in year after	3.5	2.3
Earnings in year before	2.6	2.0
Difference over time (percentage points)	0.8	-0.4
D-in-D overall (percentage points)	1.2	—
D-in-D per participant (percentage points)	<b>5.5</b>	—
Regression Adjusted		
D-in-D overall	1.2	—
D-in-D per participant	<b>5.5</b>	—
<b>Number Randomized Through February 2003</b>	<b>1,440</b>	<b>256</b>

Source: Calculations conducted by Mathematica Policy Research, Inc. on SSA administrative and SER data.

D-in-D = difference-in-difference; SER = Summary Earnings Record; SSA = Social Security Administration; SSI = Supplemental Security Income.

\*Impact significantly different from zero at the 0.10 level.

\*\*Impact significantly different from zero at the 0.05 level.

\*\*\*Impact significantly different from zero at the 0.01 level.

TABLE D.4  
IMPACT ESTIMATES: NEW HAMPSHIRE

	SSI-Concurrent		SSDI-Only	
	Treatment	Control	Treatment	Control
<b>SER Outcomes</b>				
<b>Employment in Year After Randomization Year Relative to Year Before</b>				
Unadjusted				
Any employment in year after (percent)	45.5	51.9	57.1	58.6
Any employment in year before (percent)	54.5	48.1	65.7	48.3
Difference over time (percentage points)	-9.1	3.7	-8.6	10.3
D-in-D per participant (percentage points)	-12.8	—	-18.9	—
Regression Adjusted				
D-in-D per participant (percentage points)	-29.5*	—	-29.6**	—
<b>Earnings in Year After Randomization Year Relative to Two Years Before</b>				
Unadjusted				
Earnings in year after	\$1,691	\$2,390	\$2,093	\$1,825
Annual earnings in two years before	\$2,186	\$2,100	\$2,115	\$4,511
Difference over time	\$-495	\$290	\$-21	\$-2,687
D-in-D per participant	\$-785	—	\$2,665	—
Regression Adjusted				
D-in-D per participant	\$-597	—	\$-512	—
<b>Earnings in Year After Randomization Year Relative to Year Before</b>				
Unadjusted				
Earnings in year after	\$1,691	\$2,390	\$2,093	\$1,825
Earnings in year before	\$2,140	\$1,077	\$2,723	\$3,481
Difference over time	\$-449	\$1,313	\$-630	\$-1,656
D-in-D per participant	\$-1,761	—	\$1,026	—
Regression Adjusted				
D-in-D per participant	\$-709	—	\$-1,633**	—
<b>Number Randomized Through 2001</b>	<b>22</b>	<b>27</b>	<b>35</b>	<b>29</b>

TABLE D.4 (continued)

	SSI-Concurrent		SSDI-Only	
	Treatment	Control	Treatment	Control
<b>SSA Data Outcome: Employment in Six Months After Randomization Relative to Six Months Before</b>				
Unadjusted			—	—
Any employment in six months after (percent)	25.8	17.1	—	—
Any employment in six months before (percent)	19.4	17.1	—	—
Difference over time (percentage points)	6.5	2.4	—	—
D-in-D per participant (percentage points)	<b>4.0</b>	—	—	—
Regression Adjusted				
D-in-D per participant (percentage points)	<b>-1.8</b>	—	—	—
<b>Number Randomized Through February 2003</b>	<b>31</b>	<b>41</b>	<b>35</b>	<b>29</b>

Source: Calculations conducted by Mathematica Policy Research, Inc. on SSA administrative and SER data.

D-in-D = difference-in-difference; SER = Summary Earnings Record; SSA = Social Security Administration; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

\*Impact significantly different from zero at the 0.10 level.

\*\*Impact significantly different from zero at the 0.05 level.

\*\*\*Impact significantly different from zero at the 0.01 level.



TABLE D.5

MDD FOR CHANGE  
IN PROPORTION EMPLOYED

		Number Randomized Through December 31, 2001		Estimated Change in Employment Over Time (Percentage Points) <sup>a</sup>	Overall MDD (Percentage Points)	Per-Participant MDD (Percentage Points)
		Treatment	Control			
NY—SSI- Concurrent	Benefits Counseling Only	937	914	-3.1	2.1	7.0
	Benefits Counseling + Employment Services	932	914	-3.1	2.1	6.4
NY Buffalo Site — SSI- Concurrent	Benefits Counseling Only	259	225	1.3	2.6	6.9
	Benefits Counseling + Employment Services	251	225	1.3	2.6	6.6
Oklahoma	SSI-Concurrent	1,440	256	-9.4	5.4	24.7
New Hampshire	SSI-Concurrent	22	27	3.7	13.4	13.4
	SSDI-only	35	29	10.3	18.9	18.9

Source: Calculations conducted by Mathematica Policy Research, Inc. on SSA administrative and SER data.

Note: The calculations assume 90 percent significance, 80 percent power, two-tailed test.

MMD = minimum detectable difference; SER = Summary Earnings Record; SSA = Social Security Administration; SSDI = Social Security Disability Insurance; SSI = Supplemental Security Income.

<sup>a</sup>Unadjusted change in employment over time for the control group.

