

Design of the Project NetWork Return-to-Work Experiment for Persons with Disabilities

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As the Nation's first rigorous large-scale evaluation of vocational rehabilitation (VR) assistance to persons with severe disabilities, the Project NetWork demonstration will provide a wide range of information to policymakers, researchers, and other interest groups. The evaluation of Project NetWork addresses two key policy questions:

- Is it feasible to increase participation in VR services among Disability Insurance (DI) beneficiaries and Supplemental Security Income (SSI) applicants/recipients through a combination of intensive outreach, case management, and enhanced work incentives?
- Do the interventions tested produce net benefits from the perspective of participants, society, the DI Trust Fund, and the Federal Government, as a whole?

The study utilizes a randomized field experiment design to evaluate the net impact of the demonstration on participant employment, earnings, receipt of transfer benefits, social and psychological well-being, and other variables of interest to policymakers. A combination of SSA administrative data, information from the demonstration's onsite management information system (MIS), and in-person interviews (containing a rich array of information on disability, health, and attitudes) supports the evaluation.

This article summarizes three aspects of the evaluation: Its experimental and sample design; the methods and data to be used to analyze project benefits, costs, and participation; and the challenges faced during demonstration implementation. It also presents preliminary data on the characteristics of Project NetWork participants and eligibles.

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Project NetWork is a demonstration initiative of the Social Security Administration (SSA) to test alternative ways to provide rehabilitation and employment (R&E) services to SSA's Disability Insurance (DI) beneficiaries and Supplemental Security Income (SSI) disabled/blind applicants and recipients.¹ It uses a case management approach to broker services and encourage and facilitate movement into the labor force as a possible alternative to income assistance through the DI and SSI programs. The demonstration represents the first time that SSA has provided services directly to its client population to test the feasibility and efficacy of the case management approach. This article describes the demonstration and its multi-year evaluation, both of which began in 1992. Government-sponsored R&E programs are thought to offer the greatest promise for expanding the employment of persons with disabilities. Despite this presumption, there remains considerable uncertainty as to the feasibility and cost-effectiveness of R&E as a return-to-work strategy. Project NetWork and its evaluation are intended to help fill this critical gap in our knowledge base, primarily through its large-scale randomized field experiment design.

Project NetWork represents the largest return-to-work demonstration initiative targeting DI beneficiaries and SSI recipients and applicants ever undertaken, and the first major project to target the whole DI beneficiary and SSI recipient populations. The demonstration has a total budget of approximately \$25 million and will solicit approximately 200,000 individuals for project participation. In collaboration with the Office of the Assistant Secretary for Planning and Evaluation (ASPE) at the Department of Health and Human Services, SSA has contracted with Abt Associates Inc., a nationally known research firm, to evaluate Project NetWork over a 5-year period. A Technical Advisory Panel consisting of distinguished experts from academia and the Federal Government has also been created to advise the evaluation team on the technical aspects of the evaluation and to assist in interpreting the study design and results.

Background

Rehabilitation and employment services for persons with disabilities have been federally funded and administered by State vocational rehabilitation (VR) agencies since 1920. Until the mid-1960's, however, VR was not expressly promoted by Federal disability programs, which focused instead on income support for those whose disabilities made it impossible to work steadily without assistance. This changed in 1965, when SSA's Beneficiary Rehabilitation Program began funding R&E services for disability beneficiaries through the State VR system.² Initially, funding was set at 1 percent of the previous year's total DI benefits and was granted to State VR agencies at the beginning of each fiscal year to finance the full cost of services to beneficiaries regardless of the outcome of those services. Funding increases were subsequently provided because the Congress believed that VR services were producing substantial savings to the DI Trust Fund.³

However, evidence from a General Accounting Office (GAO) study in 1976 raised some doubt regarding the effectiveness of the program. According to that study, only \$1.15 was being returned to the DI Trust Fund for each dollar spent for VR services, a figure considerably lower than previously believed by the Congress and SSA.⁴ To date, the issue of the cost-effectiveness of State VR programs is still unresolved.

In response to the initial concerns over low savings-to-cost ratios in the 1970's, Congress changed the method of funding State VR agencies services to disability beneficiaries.⁵ Congress also provided research funds for demonstrations and experiments into alternate ways to encourage greater work activity among disability beneficiaries and new SSI applicants.⁶ This research mandate, generally known as "section 505" authority, permitted the SSA to waive certain provisions of the DI and SSI programs to facilitate the demonstrations and experiments. Numerous projects have been funded under section 505 authority, Project NetWork

being the most recent and largest to date. By conducting the demonstration as a randomized field experiment and funding a thorough evaluation of its effects, SSA and ASPE have taken the first step toward substantially expanding what is known about the feasibility and efficacy of R&E services for persons with severe disabilities. The only previous field experiments involving R&E services were the Transitional Employment Training Demonstration (TETD), sponsored by SSA, and the Structured Training and Employment Transitional Services (STETS) Demonstration, sponsored by the Department of Labor. Both of these initiatives were conducted in the early to mid-1980's, served only SSI recipients with mental retardation, and included much smaller evaluation samples.⁷ The next four sections of the article discuss the questions to be addressed by the study and detail the key features of the project's implementation and evaluation.

Objectives and Expectations

In this section, we discuss two major topics to be addressed by the evaluation. Although case management is the generally accepted approach to arranging for and monitoring R&E services for persons with disabilities, little is known about the feasibility and effectiveness of this approach with DI or SSI disability beneficiaries. We define these questions, as follows:

- **Feasibility.** Is it feasible for SSA to increase participation in VR services among DI and SSI beneficiaries and new SSI applicants through a combination of intensive outreach, case management, and enhanced work incentives?
- **Efficacy.** Do SSA-sponsored case management and enhanced work incentives improve R&E outcomes of DI beneficiaries and SSI applicants/recipients compared to what those individuals would have achieved without case management, and do these interventions produce benefits that more than offset their costs?
- Mailings, telephone followup calls, in-person discussions with case managers and (for new SSI applicants) SSA claims representatives, and media outreach;
- the offer of intensive case management, liberalized work incentives, and free support services increasing the attractiveness of volunteering,

For each topic, we first explore the specific questions to be addressed by the evaluation and then consider the level of accomplishment that one might reasonably expect from the demonstration. In both regards—feasibility and efficacy—existing economic theory and previous empirical studies generate mixed expectations for the demonstration.

Participation Questions and Expected Outcomes

Project NetWork provides a test of the viability of increasing participation in voluntary VR programs by SSA's disability applicants and beneficiaries through incorporating intensive outreach, case management, and liberalized work incentives into the standard R&E approach. There are several reasons to anticipate some degree of success in accomplishing this objective: (a) The project fills a knowledge gap among the general population and particularly disability beneficiaries by providing information about the availability of VR and work incentives for beneficiaries and applicants who otherwise might not have been aware of either; (b) the project increases the supply of no-cost (to the participant) VR services to meet previously unmet demand for those services in the target population; (c) the project induces new demand for R&E services by offering a more attractive service package, liberalizing work incentives, signaling SSA's intention of encouraging rather than discouraging work effort, designing outreach communication to increase self-esteem, and providing social support to potential participants. The outreach and solicitation approach employed in Project NetWork includes the following components:

- Mailings, telephone followup calls, in-person discussions with case managers and (for new SSI applicants) SSA claims representatives, and media outreach;
- the offer of intensive case management, liberalized work incentives, and free support services increasing the attractiveness of volunteering,

potentially inducing new demand for VR among project eligibles; and

- equal access to all subgroups of the eligible population, including those whose age, severity of disabling condition, or length of time on the beneficiary rolls might otherwise have made participation unlikely under traditional screening criteria.

There are also some strong reasons to anticipate only limited success in increasing participation in VR among the DI and SSI populations targeted by Project NetWork. Disabling conditions increase the opportunity costs of working, and hence reduce both labor supply and interest in education and training. As Oi and Andrews have pointed out, the onset of disabling conditions may alter labor-leisure decisions in several ways.⁸

First, disabilities can directly affect individuals' preferences, and hence the demand for leisure. Second, disabling conditions can affect productivity, and therefore, wages. Third, disabilities can influence time available for work and leisure. Persons with disabilities require more "maintenance time" and, consequently, have less time for other purposes. For example, disabilities may reduce the time available for work on a daily basis (by increasing the time needed for rest, getting medical treatments, and travel), annually (through added sick days and hospital days), and through the reduced life-expectancy associated with some disabling conditions (for example, neoplasms, HIV infection, renal failure, strokes, and heart disease).⁹

The potential for successful vocational rehabilitation, and therefore the demand for program participation, is expected to be influenced negatively by lost work experience and extended stays on the disability program rolls among disability beneficiaries.¹⁰ Also, despite all of the previous work incentive liberalizations, as well as the added Project NetWork waiver provisions, the financial disincentives discouraging work for DI and SSI beneficiaries remain severe.

Impact and Benefit-Cost Questions and Expected Outcomes

Although vital to the demonstration's success, the participation issues just discussed are perhaps secondary in importance to the critical unanswered policy questions in the disability employment area: How well do R&E services work, and what return on investment do they provide? In the absence of evidence on net benefits, there would be little cause for concern about increasing project participation or streamlining service delivery.

The specific questions to be addressed by the impact and benefit-cost components of the evaluation include: (1) Does case/referral management increase the employment and earnings of project participants? (2) Is the receipt of disability benefits reduced? By how much? (3) Are there other individual or social benefits from the demonstration intervention, such as increased participant well-being or additional tax collections? (4) Will benefits be sustained over time and eventually exceed demonstration costs, producing net benefits to society and/or participants?

In thinking about these questions, it is important to bear in mind that the impacts, benefits, and costs of Project NetWork can be evaluated from several different perspectives: those of participants, taxpayers, the DI Trust Fund, and society as a whole.¹¹ There are several reasons to anticipate that the demonstration might produce net benefits to one or more of these groups, and in particular to participants:

- Project NetWork is a voluntary, rather than mandatory, VR program. To volunteer for the program requires positive motivation, which is essential for the success of any return-to-work initiative. Moreover, self-screening might be an extremely efficient way of solving a crucial information problem: the need to serve only those with the potential to benefit. SSA has only limited information on the many ways disabilities affect the capability to work, and almost no information on recent

changes in the health and functional status of persons who have been on the DI and SSI rolls for several years. Thus, it is only the Project NetWork eligibles themselves who possess the information critical to focusing the project on those with the potential for success. By this mechanism, massive outreach can help to identify good candidates for VR through self-selection, many of whom may display a surprising pattern of seemingly severely disabling conditions and yet know themselves that they possess the potential for a successful return to work.

- The two previous experimental evaluations of a subset of the Project NetWork target population, the TETD and STETS demonstration evaluations, have shown a positive pattern of net benefits, particularly from the participant's perspective. In particular, the TETD evaluation has shown that significant earnings impacts persist for at least the first 6 post-entitlement years.¹²
- There are potentially large benefit savings from the perspective of the DI Trust Fund and the taxpayers financing the SSI disability program. The most recent actuarial estimate of the average lifetime costs of DI and related Medicare benefits came to \$66,800 in 1986 dollars, and would be much higher in today's dollars.¹³ In theory, VR can reduce or eliminate these costs by effecting a permanent return to self-sufficiency for existing beneficiaries, and the prevention of all benefit payments to new applicants. Hence, any intervention that induces even a small number of additional "success cases" could produce substantial benefit savings.
- However, there are also some reasons to be cautious about anticipated net benefits, both from the participant and, especially, from the DI Trust Fund and SSI budgetary perspectives:
 - Many of those who leave the rolls for medical or work-related termina-

tion or suspension or for income-related reasons (for SSI) subsequently return to full beneficiary status. Dykacz and Hennessey show that a substantial portion (43 percent) of those DI beneficiaries who recover subsequently return to the benefit rolls.¹⁴ Bound shows that fewer than 50 percent of rejected male applicants for DI later work, and many who do not work eventually end up on the disability rolls.¹⁵ A November 1989 report of the General Accounting Office reinforces the conclusions from the Dykacz-Hennessey and Bound studies.¹⁶ It finds that most DI beneficiaries terminated from the program between 1981 and 1984 returned to the rolls, and half of those who did not were not working.

- Anticipated lifetime DI and SSI savings and net earnings gains are also reduced by exposure to VR opportunities late, rather than early in the benefit spell. The article by McManus demonstrated the high degree of sensitivity of DI savings estimates to assumptions about the net effect of VR services on rates of recovery and the length of the post-recovery savings period.¹⁷ As noted below, many Project NetWork participants are well into their disability benefit spells when they enter the demonstration.
- Finally, net benefits may be positive to participants but still negative from the perspective of the DI Trust Fund, the SSI budget, and society as a whole.

The above list of possible large or small demonstration effects should warn against premature judgments concerning the success or failure of the demonstration. The preceding discussion also suggests some of the challenges facing the evaluation's design, particularly its core impact analysis. The importance of distinguishing among different degrees of potential program success provides a strong rationale for conducting a well-designed evaluation with a randomized field experiment as its cornerstone.

Without such a design, research into these issues would continue to lack a credible way of measuring and comparing most demonstration impacts, intended or unintended, positive or negative.

Demonstration Design

In implementing Project NetWork, SSA has for the first time decided to initiate the provision of R&E services for DI beneficiaries and SSI applicants/recipients from its extensive network of field offices. This undertaking poses special operational challenges for the organizations involved, which we discuss in this section.

Beginning in late 1989, SSA executive staff developed the four case management models to be tested in the demonstration:

- **SSA Case Manager Model:** SSA-operated case management through local SSA field offices.
- **Private Contractor Model:** Private sector case management under contract to SSA.
- **VR Outstationing Model:** State VR-provided case management under contract to SSA and outstationed in SSA field offices.
- **SSA Referral Manager Model:** SSA-operated referral management through local SSA field offices.

It was decided that, in all of these models, SSA field office staff or staff under contract to SSA would recruit clients, evaluate employment potential, arrange for and coordinate R&E services, act as liaisons to employers and R&E service providers, and provide additional assistance and guidance as needed to successfully complete a rehabilitation plan. The four models would differ, however, in the degree to which the Social Security Administration carried out these functions directly as opposed to through contractors and/or local service providers.

After the models were chosen, several other basic parameters of the demonstration were established: (1) Each

model was to be implemented in two sites or metropolitan areas, for a total of eight sites in the demonstration as a whole; (2) all DI and SSI disability beneficiaries or applicants for SSI disability payments who live in the field office service areas would be solicited to volunteer for the project and would automatically qualify unless employed or already participating in a return-to-work program; and (3) those individuals who decided to volunteer for participation would be randomly assigned to a treatment or a control group.¹⁸ The treatment group cases would be eligible for the full range of R&E services offered by the demonstration and for the waiver provisions described below (Experimental Design). Control group cases would be eligible for the waivers but not Project NetWork R&E services; and (4) volunteers would be solicited and services provided for the first 15 months of full-scale operations; services would continue to be provided for an additional 9 months, as needed, after the end of the solicitation period.

Site Selection

For operational reasons, the method of choosing sites varied according to the type of case management model implemented. For the SSA Case Management and Referral Management Models, the first step was to poll SSA regional offices regarding interest in hosting the project in one or more of their field offices. Those regional offices that expressed a strong interest in the demonstration were screened for field offices or clusters of field offices with large enough service areas to supply the number of eligible persons needed for the evaluation. Consideration was also given to picking sites that would result in geographic diversity across the Nation. Operational judgments were also made concerning the strength of field office management and the capacity of each office to handle the client traffic.

Similar considerations influenced the selection of the Private Contractor and the VR Outstationing Model sites within a somewhat different overall process. Here, sites were proposed by

the private firms and State VR agencies that bid to conduct the demonstration under contract to SSA. And while the size and location of the proposed sites were considered during the evaluation of each proposal, final selections were based primarily on operational considerations such as the experience of the bid staff and the strength of the organization's proposed approach to achieving the goals of the demonstration.

Table 1 provides a summary of the resulting demonstration sites, including the lead agency, service locations (in terms of local field offices), start date of full operations, and projected numbers of volunteers.

In contrast to the selection of treatment cases, SSA did not use a random process for selecting sites. A representative nationwide random sample of the more than 1,300 SSA field offices would have rendered the demonstration unwieldy and would have required a resource commitment far exceeding the

budget constraints established for the project. As a result, the site selection process resulted in a set of sites that is not likely to be representative of average management conditions across the United States. The sites are also probably not representative of the Nation in terms of the mix of local socioeconomic conditions. Most other known experimental evaluations of innovative demonstration initiatives have estimated program effects on a self-selected set of sites, just as Project NetWork does.¹⁹ To add to our understanding of the results, the evaluator will compare the demonstration sites to the Nation on available characteristics and analyze the impacts of local organizational and socioeconomic characteristics on the observed outcomes.

Demonstration Outreach and Intake

At the beginning of the demonstration and at 3-month intervals thereafter,

solicitation letters were mailed to a random fifth of the DI and SSI caseloads in each site. The letter briefly explained what Project NetWork is about and contained a postcard to be returned if the beneficiary was interested in hearing more about the project. Where necessary to meet enrollment targets, those beneficiaries who have been on the disability rolls for 2-5 years and young SSI recipients aged 15-19 who did not return a postcard within one month received a followup letter, again inviting them to an introductory interview.

The other major group of potential demonstration participants consists of individuals who walk into a project field office and apply for or inquire about benefits. Those applying for SSI disability or blindness payments could participate immediately and were given a brief explanation about Project NetWork at that time and were invited to respond at once. If the individual was applying for DI benefits only, a notation

Table 1.--Characteristics of the Project NetWork test sites

Model	Demonstration agency	Service location	Start date of full operations	Projected number of volunteers
SSA Case Manager Model	Two Dallas field offices	Dallas, TX (field offices): Oak Cliff	June 1, 1992	1,080
	Fort Worth SSA field office	Dallas North		
Private Contractor Model	SouthWest Business and Industry Rehabilitation Association	Phoenix, AZ	Jan. 18, 1993	1,080
VR Outstationing Model	Karr Services	Minneapolis MN	Jan. 18, 1993	1,080
	State of New Hampshire Vocational Rehabilitation Agency	New Hampshire (various cities): Manchester Nashua Littleton Portsmouth Concord Keene	Feb. 16, 1993	1,080
	State of Virginia Vocational Rehabilitation Agency	Richmond, VA (field offices): Richmond Richmond East Richmond West Chesterfield	Mar. 29, 1993	1,080
SSA Referral Specialist Model	Tampa and Carrollwood SSA field offices	Tampa , FL Carrollwood, FL	Jan. 18, 1993	1,080
	Spokane and Coeur d'Alene SSA field offices	Spokane, WA Coeur d'Alene, ID	Jan. 22, 1993	840

was made to contact the individual immediately after approval of the application to make the invitation then. All solicited persons who expressed an interest in the project were contacted by a case manager or administrative assistant to set up a time for an introductory interview. In some cases, these interviews were conducted over the phone, although most were in person.

During the interview, the case manager explained the project in greater detail and collected some basic data on the work and earnings of the individual. Near the end of the interview, the case manager asked the individual if s/he would like to volunteer for Project NetWork. If the individual said "yes," the case manager called the evaluator's Random Assignment Hotline for random assignment of the individual to the treatment or the control group. If the assignment was to the control group, the case/referral manager thanked the volunteer for their time and cooperation. No further assistance in securing R&E services was offered. If a person assigned to the control group asked how to get assistance from some source outside the project, the case/referral managers could give the individual the name and address of the nearest State VR office.²⁰

For treatment cases, case/referral managers immediately started the process of arranging for VR/medical evaluations and services, developing the individual employment plan, monitoring progress through that plan, and recording all significant actions, services, and costs in the Case Management Control System, explained later (Data Sources and Analysis).

Experimental Design

In this section, we discuss the rationale for the experimental design used in Project NetWork and we describe the specific structure of this design.

Need for an Experimental Design

The evaluation's design grew out of the 25-year history of employment and training program evaluation.²¹ Throughout that history, including the

history of VR program evaluation, non-experimental estimation techniques were generally used to evaluate the impact of program interventions. In this mode of analysis, researchers often employed sophisticated econometric techniques in an attempt to account for preexisting differences in motivation, health status, ability, social supports, and other factors between persons participating in the program and the nonexperimentally selected "comparison groups" used as benchmarks for measuring program impacts. Although the data available for such studies left researchers with few options in the choice of analytical techniques, such techniques are inherently imperfect in measuring the net impact of an existing program or demonstration.

In contrast, an experimental design (and, in rare instances, observational data mimicking random assignment) can create a nearly perfect "counterfactual" against which participant outcomes can be measured.²² When potential participants are randomly assigned to either receive program services or not receive such services, a sufficiently large sample size will make the two groups indistinguishable in all relevant characteristics (whether these characteristics can be measured or not) with the single exception of exposure to program services. Any statistically detectable post-enrollment differences can then be attributed to the causal effect of the intervention itself. Experimental design has been an increasingly important tool in evaluating social policy interventions since the launching of the Negative Income Tax Experiments more than two decades ago.²³

During the last decade, a number of major experimental evaluations have been initiated by agencies responsible for major employment and training programs, such as the Departments of Labor, Health and Human Services, and Agriculture. Because of the great policy importance of providing highly reliable estimates of the net effects of Project NetWork services, SSA and ASPE decided to implement an experimental design for Project NetWork. Although two previous evaluations, the TETD and

STETS evaluations noted earlier, successfully used an experimental evaluation design on a much smaller scale, the Project NetWork evaluation is the first large-scale experimental evaluation of VR services, and the first-ever study to provide experimental estimates of the effects of return-to-work initiatives for DI beneficiaries.

Measuring the Effects of a Voluntary Program

As with many other employment and training programs, including all State VR programs, Project NetWork is a voluntary program. By focusing on volunteers, an experimental evaluation like Project NetWork provides unbiased and statistically efficient impact estimates for the population most likely to be served by future voluntary return-to-work programs: individuals who self-select into the project. By waiting until after volunteers self-select for the project before conducting random assignment and identifying the treatment group, we can compare treatment group members, who are self-selected participants, with control group members, who are also self-selected participants, to obtain an unbiased measure of demonstration effects on two otherwise equivalent—and highly relevant—populations. The two groups can be assumed to have essentially identical motivation to participate in an R&E program and to work. That the two groups are well-matched at baseline is clear from the preliminary comparison of initial treatment and control group characteristics shown in table I.²⁴

Moreover, impact estimates for voluntary demonstrations should measure marginal (that is, incremental) effects, conditional on factors affecting the decision to participate and on the presence of waivers, since it is only for volunteers that such estimates have any direct relevance.²⁵

Experimental Measurement of Case Management Effects

SSA's main objective in conducting this experiment is to determine unam-

biguously whether case/referral management is a cost-effective means of providing R&E services to SSA's disability beneficiaries, both in terms of the Social Security trust funds and costs and benefits to the society generally. Therefore, it was important that the experimental design be set up such that the treatment and control groups be impacted identically except for the receipt of case/referral management services. SSA and ASPE decided to provide DI and SSI program waivers to both the treatment and control cases for this experimental design but other case management services only to treatment group members. The waivers were provided to prevent disability benefit suspension or termination for all participants for at least one year during their participation in the demonstration.

Aside from technical waivers, there were two waivers that were established to protect the disability benefits of project participants when they started to work. First, a DI waiver was designed to suspend the counting of trial work period (TWP) months for the first 12 months of work while participating in the project. This guarantees that benefits will not be suspended or terminated solely due to work attempts for an additional year. Second, an SSI waiver prevents a continuing disability review from being conducted when an SSI participant moves into 1619 status because of work activity, as would often be required under normal circumstances.²⁶ This prevents a determination that a project participant who has returned to work is no longer medically disabled for as long as the individual is in 1619 status and is still an active project participant.

Providing waivers to both the treatment and control cases means that the observed differences between the two groups can be attributed to the effects of case management alone. Withholding waivers from the control group would produce unbiased experimental estimates of the combined effect of waivers and case management, but would require reliance on nonexperimental estimation approaches to isolate the effect of case management services alone. In

contrast, providing waivers to the control group produces an experimental estimate of the marginal effect of services, conditional on the presence of waivers, but requires the use of non-experimental methods to estimate the separate effect of waivers.

To assess the advisability of national implementation of intensive, SSA-sponsored R&E services like Project Network, it is important to know whether case management produces net benefits. This can be reliably determined only if treatment group members are compared with an otherwise similar group of volunteers receiving waivers but not case management services. The evaluator will use nonexperimental statistical methods to estimate the impact of the waivers alone on participant behavior.²⁷

Assuring the Integrity of Individual Randomization

Procedures to assure the integrity of assignment to "treatment" and "control" status are central to the success and credibility of the Project NetWork experimental evaluation. For this reason, the Project NetWork experimental design makes it the contractual responsibility of the evaluation contractor to develop, control, and maintain a random assignment process that cannot be deciphered and manipulated by program operators, case managers, or other private, State, or Federal Government employees involved in the management of the demonstration or the evaluation. To this end, the evaluator developed a highly sophisticated computerized random assignment process that provides extremely strong safeguards against "gaming" behavior on the part of program operators.²⁸

Case managers can enroll volunteers only after calling the Random Assignment Hotline. After the evaluator's random assignment clerk enters identifying information into the evaluator's computer defining the person as a Project NetWork volunteer, the computer automatically generates a random assignment with a 50-50 probability of assignment to treatment or control

status. The experimental assignment is unknown even to the evaluator's clerk until after the computer's random number generator makes the random assignment decision. This procedure has thus far (through January 13, 1994) produced the closely matched treatment and control groups shown in Appendix table I.

Sample Design

The Project NetWork evaluation sample is designed to achieve generally accepted levels of statistical precision when measuring program effects from both administrative and survey data. Although Project NetWork's experimental design eliminates systematic error (that is, bias) in estimating program impacts, it does not eliminate stochastic error resulting from chance fluctuations in the data. This second source of error in the impact measures can be controlled for only through an appropriately selected sample size and statistical adjustments (for example, regression adjustments) designed to reduce the variance of experimental estimates and thereby increase statistical precision.

In making rational decisions about appropriate sample sizes, the costs of additional observations need to be weighed against the resulting gains in precision. To determine the desired sample size for the Project NetWork experiment, the following statistical decision framework was adopted:

Sample sizes should be sufficient to detect an increase in favorable outcomes (for example, increased employment, reduced DI benefits) necessary to assure Federal budget neutrality for the DI and SSI programs separately, at customary levels of statistical significance and power ($\alpha = 0.05$, power = 0.80) for each of the four demonstration models. In other words, if the case management intervention does succeed in saving Federal dollars, the evaluation should be capable of detecting the presence of statistically significant fiscal benefits with 80-percent assurance.

This criterion led to an overall experimental sample size of 8,400 individuals for the four demonstration

models combined. Outcomes that can be measured on the basis of standard administrative data or the demonstration's data will be available for all 8,400 participants. For budgetary reasons, interview observations—which are much more expensive—will be available at followup for only 1,100 treatment group members and 1,100 members in the control group. The minimum detectable effects that result from these sample sizes are shown in table 2. In most instances, the numbers in the table reflect the smallest impacts that can be reliably detected with available data based on a simple difference-in-means estimation technique.²⁹

Four selected outcome measures are included in table 2: Average monthly DI benefit amount, employment status, earnings over the 24 months following demonstration entry, and positive outlook on life.³⁰ Minimum detectable effects for all participants are shown in the first column of the table. Based on a sample of 8,400 individuals in the administrative data files, we will be able to confidently detect average impacts of \$14 for monthly DI benefits, 0.03 for the proportion employed each year, and \$192 for earnings in the 24 months after demonstration entry.

The smaller survey sample size of 2,200 will allow us to detect impacts on the proportion of respondents with a positive outlook on life of 0.07. As the percentage of participants in a subgroup becomes smaller, progressively larger program impacts will

need to occur in order to be detected. Thus, for subgroups that constitute 25 percent of the population—for example, demonstration participants in a specific case management model—an average impact of \$383 on earnings in the 24 months after demonstration entry will have to occur in order to be detectable with 80-percent confidence.

participants (those who volunteer) and non-participating applicants. For participants, it assures that these baseline data are captured uniformly for treatment and control group members before random assignment. Subsequent actions related to treatment clients are recorded as they occur, including movement through the various stages of the case/referral management process.

Data Sources and Analysis

In this section, we review the sources of data to be employed in the Project NetWork evaluation and discuss the types of analyses planned for these data.

Demonstration Monitoring and Operations Data

During the planning of the demonstration, SSA staff decided to design a Case Management Control System (CMCS) to assist demonstration case/referral managers to track the progress of their clients and to collect data on clients' personal characteristics, service plans, service receipt, service costs, and job placements. SSA (either directly or through the demonstration contracts) provided each case/referral manager with a personal computer with which to operate and update the data fields on the CMCS for each client. The case/referral managers use this system to record personal information for all demonstration applicants before determining if they are interested in volunteering for the project.

This approach captures a common set of baseline variables for both partici-

SSA Administrative Data

Another important source of operational and evaluation data for the demonstration is the SSA central office administrative data system. This system contains information on the type of benefits applied for or received, the type of disabling condition, the date benefits were awarded, the amounts of benefits, and the earnings of beneficiaries.³¹ After intake, case managers can also inquire of the administrative data system for limited benefit-related information, which is then input into the CMCS record for each individual.

To establish a sampling frame of nonparticipants for the baseline survey (see below) and to provide essential data for the analyses, plans have been made to extract full administrative records for each of the approximately 200,000 individuals who were solicited for project participation. This includes those who never expressed an interest in the project as well as those who participated in an interview with a case manager and, in some instances, volunteered. In addition, Medicare records for project participants and nonparticipants will be requested from the Health Care Financing Administration as an aid to analyzing the health services utilization patterns of those individuals as well as to compare health care expenditures between treatment and control cases.

Personal Interviews

As noted earlier, the evaluation contractor is conducting baseline interviews with a sample of treatment, control, and nonparticipant cases in all project service areas. The evaluator interviewers administer an electronic survey questionnaire on an in-person

Table 2.—Minimum detectable effects of Project NetWork services on selected outcomes, by subgroup of participants

Outcome measure	Effects of Project NetWork services			
Percent of total participants in subgroup.....	100	75	50	25
Average monthly DI benefit amount.....	\$14	\$17	\$20	\$29
Proportion employed.....	.03	.03	.04	.06
Average earnings during 24 months after demonstration entry.....	\$192	\$221	\$271	\$383
Proportion with positive outlook.....	.07	.08	.09	.13

basis using laptop computers.³² The goal is to interview participants (treatment and control group members) within a few weeks of random assignment and nonparticipants within 90 days of when they were first solicited for the project.

The baseline survey questionnaire requires 60–90 minutes to administer and has questions about education, training, health, functional and activity limitations, employment history, and knowledge of SSA's work incentives for disability beneficiaries. It is unique among general disability surveys in that it also contains questions about emotional stability, drug/alcohol use, and cognitive functioning. These latter areas of inquiry will be used as much as possible to gauge the motivation and capacity for work of the survey respondents, and how those factors affect demonstration participation. Nonparticipants are asked why they decided not to participate in Project NetWork.

The evaluator is randomly selecting cases at a rate which—based on an expected 90-percent response rate—will provide 1,375 completed baseline interviews for each of the treatment, control, and nonparticipant populations. The evaluator will also design a follow-up questionnaire to be administered to as many of the baseline treatment group and control group respondents as possible 24 months after the baseline interview.³³ Those interviews will serve as the basis for measuring and comparing changes between initial involvement with the project and a point sufficiently later in time for treatment group members to have completed R&E services and to be placed in jobs. Reinterviewing control group members at the same point in time will allow for unbiased estimation of demonstration impacts on survey-based outcomes, with a level of statistical precision outlined above (Experimental Design).

Analyzing Program Participation

The hypothesized determinants of demonstration participation discussed at the beginning of this article (Objectives and Expectations) provide the starting point for the empirical analysis

of demonstration participation. The analysis will begin by considering more formally the factors that could condition beneficiaries' interest in work and rehabilitation in general. Presumably, one important motivation is the desire to be self-supporting through earned income, assuming that this can be achieved at some reasonable level of work effort.

To help us understand the decision to work and how it might change because of the demonstration, chart 1 shows the work/income tradeoff faced by the typical DI beneficiary once s/he has exhausted the 12-month TWP during which earnings do not affect benefit eligibility or amounts.³⁴ As can be seen, after this point standard DI rules impose a large, lump-sum "tax" (segment AC) on earnings—in the form of discontinued DI benefits—whenever earnings exceed the SGA threshold. Hours of work must increase from H_0 to H_1 to recover the lost income caused by DI benefit suspension.

The demonstration waivers remove this penalty for an additional 12 months, increasing both the short-run and long-run potential for economic improvement through employment. In the short run, beneficiaries who have exhausted their

TWP—or who may soon do so—get to keep all of their earnings for an additional 12 months even if those earnings exceed the SGA threshold, rather than having a large share of those earnings "taxed" away by benefit suspension. If beneficiaries respond to this opportunity by initiating employment that progresses into still higher (and/or more regular) subsequent earnings, long-run earnings gains could also occur beyond the 12-month waiver period.

The decision to participate in Project NetWork may further change a beneficiary's income options through case management and R&E services. One important goal of case management is to increase hourly earnings by increasing productivity and/or by matching participants to better jobs. If this goal is achieved, the demonstration will rotate the budget line shown in chart 1 counter-clockwise, providing more income for each hour of work.

Were income and work hours the only considerations driving the decision to participate in Project NetWork, participation would then hinge on how much the beneficiary values the temporary removal of the downward "kink" in the budget line and how far s/he

Chart 1.—Diagram of the work and income options of a DI beneficiary who has exhausted the trial work period

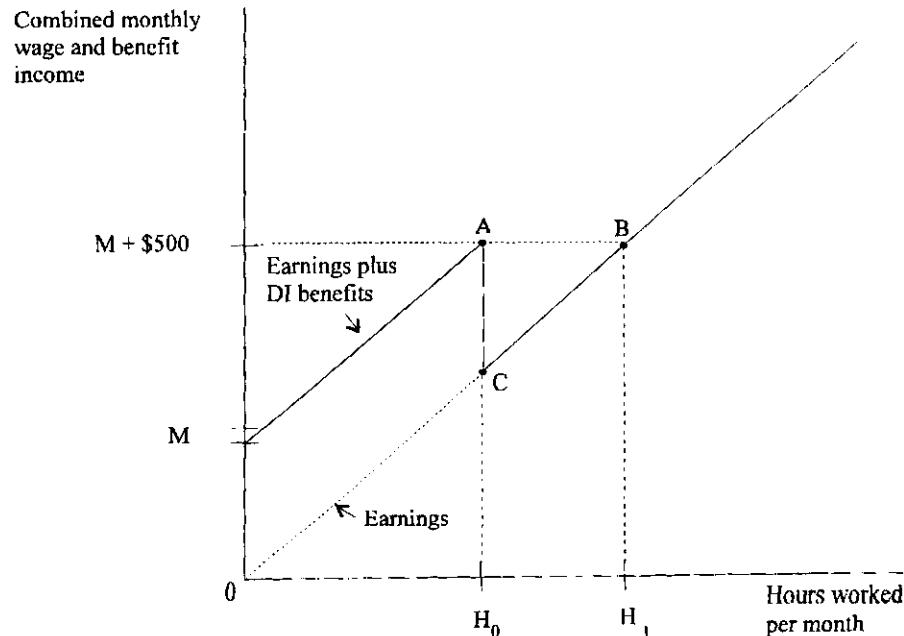


Table 3.—Selected baseline characteristics of Project NetWork participants and nonparticipants¹

Characteristic	Participants through January 13, 1994 ²	Nonparticipants receiving benefits on June 1, 1993 or September 1, 1993 ³
Sample size.....	5,660	43,118
Total percent.....	100	100
Sex:		
Male.....	59	57
Female.....	41	43
Age: ⁴		
Less than 21.....	3	4
21–30.....	18	14
31–40.....	31	24
41–50.....	28	27
51–60.....	19	31
Body system affected by primary disabling condition: ⁵		
Musculoskeletal.....	19	14
Senses/speech.....	4	3
Respiratory.....	2	2
Cardiovascular.....	4	5
Digestive.....	1	1
Genitourinary.....	2	1
Hemic and lymphatic.....	1	1
Skin.....	0	0
Endocrine.....	2	1
Neurological.....	10	9
Mental.....	39	39
Neoplastic diseases/malignancies.....	2	2
Multiple body systems.....	5	3
Other.....	8	19
Years receiving disability benefits: ⁶		
Less than 2.....	22	14
2–3.....	26	24
4–5.....	15	16
6–7.....	12	11
8–9.....	8	9
10–11.....	5	6
12 or more.....	13	20
Average monthly benefit for those receiving—		
DI.....	\$556	\$581
SSI.....	276	308

¹ Percentages may not add to 100 due to rounding. Excludes Richmond, VA site where data on participants is not available.

² Includes pilot phase participants in the New Hampshire site.

³ A 20-percent random sample on each date; excludes those who had become participants by January 18, 1994.

⁴ Excludes beneficiaries aged 60 or older (2 percent of participants; no data available for nonparticipants).

⁵ For concurrent DI and SSI beneficiaries; body systems listed in the DI program records are used.

⁶ Excludes new SSI applicants (22 percent of participants; no data available for nonparticipants).

Figures for nonparticipants are approximate and assume that half of all benefit spells began in January through June. (No data are available for month and day of initial receipt.) For concurrent DI and SSI beneficiaries, the longer of the two benefit spells is shown. Figures for SSI reflect years since onset of disability not years receiving disability benefits.

expects to be able to rotate that line toward higher wages over the long run. However, health care costs and other noneconomic factors (for example, family needs, mental outlook, the desire for greater social integration) may also play an important role in the participation decision, not reflected by the income/hours worked tradeoff. In general, the decision to volunteer for Project NetWork is expected to be a function of the "opportunity costs" facing project eligibles.³⁵

Working from this general framework, it is possible to identify the following list of potential determinants of demonstration participation: (1) Pre-impairment wages; (2) duration of disability (as a proxy for skill deterioration); (3) impairment type; (4) probability of recovery; (5) age (as a proxy for expected number of years to retirement) and predicted mortality; (6) presence of family members and family members' employment; (7) other household income, especially income that could decline if earnings increase (for example, welfare payments, Workers' Compensation, veterans or private disability benefits); (8) level of DI and SSI benefits; (9) probability of steady employment above the monthly SGA threshold; (10) confidence in one's ability to work steadily; (11) expected gains from increased access to R&E services; (12) attitudes toward work; and (13) local labor market conditions.³⁶

The Project NetWork evaluation will provide information on many of these factors and use that information to estimate participation probabilities for various subgroups of the eligible population. The same set of variables will allow a descriptive comparison of the baseline characteristics of participants and nonparticipants, to highlight how selection influences the overall makeup of the participant group.

Characteristics of Participants and Nonparticipants

Preliminary data on the characteristics of Project NetWork participants

and nonparticipant eligibles are already available from administrative records and survey data. Table 3 compares the characteristics of treatment and control group members who volunteered for the demonstration by January 13, 1994, with a representative sample of non-participants based on administrative records. Table 4 provides supplementary survey information based on interviews that have been completed with both groups through January 15, 1994 by the evaluator.

Project NetWork participants closely match the distribution of nonparticipants by gender, race, and marital status. An important demographic difference is that older eligibles are underrepresented among participants. This finding is consistent with economic theory suggesting that VR is more attractive to younger eligibles because they have a longer time horizon over which they might realize potential earnings gains.

Eligibles with very long program stays (for example, 12 years or more) tend to be underrepresented among project participants. This can be expected since long spells of nonemployment reduces the value of human capital investments and is expected to form a substantial barrier to labor-force reentry. Nevertheless, it is notable that except for very long and very short (less than 2 years) stayers the probability of participation does not differ much by length of stay group. Conversely, eligibles with under 2 years on the rolls are overrepresented among participants. Also, average monthly disability benefits are slightly lower for participants than nonparticipants.

Participants form a fairly representative cross section of eligibles by the body system affected by the primary disabling condition. However, survey data indicate notable differences on various indicators of the severity of disabling conditions. As expected, participants tend to report better health and fewer functional limitations than nonparticipants. However, about half of participants report a fair or poor health condition and multiple functional limitations. Moreover, a higher proportion of participants than

Table 4.—Additional baseline characteristics of Project Network participants and nonparticipants from the baseline survey¹

Characteristic	Participants interviewed by January 15, 1994	Nonparticipants interviewed by January 15, 1994
Sample size.....	1,523	247
Total percent.....	100	100
Race:		
White, non-Hispanic.....	66	62
Black, non-Hispanic.....	23	23
Hispanic.....	6	9
Other.....	5	6
Marital status:		
Married.....	22	23
Widowed.....	3	2
Divorced.....	23	18
Separated.....	7	6
Never married.....	46	52
Self-rated health condition:		
Excellent.....	8	7
Very good.....	14	11
Good.....	29	26
Fair.....	32	30
Poor.....	16	25
Number of functional limitations:		
0.....	23	19
1.....	19	11
2.....	16	10
3.....	16	19
4.....	12	20
5.....	7	10
6 to 8.....	6	11
Number of life skills limitations:		
0.....	41	23
1.....	25	24
2.....	12	16
3.....	8	15
4.....	4	7
5.....	3	3
6 to 10.....	7	13
Ever hospitalized for emotional problems:		
Yes.....	35	22
No.....	64	77
Felt depressed or sad much of last 12 months:		
Yes.....	49	40
No.....	51	59
Portion of past year spent confined to bed due to condition:		
None.....	30	37
Less than a week.....	23	15
More than one month.....	26	33
One week to one month.....	20	15

See footnote at end of table

Table 4.—Additional baseline characteristics of Project Network participants participants and nonparticipants from the baseline survey¹—Continued

Characteristic	Participants interviewed by January 15, 1994	Nonparticipants interviewed by January 15, 1994
Condition limits ability to work:		
Yes.....	77	82
No.....	23	18
Condition prevents any work:		
Yes.....	23	53
No.....	77	47
Transportation problems limit ability to work:		
Yes.....	40	47
No.....	60	53
Worked for pay in last 12 months:		
Yes.....	31	23
No.....	69	77
Received training or rehabilitation services in last 12 months:		
Yes.....	12	15
No.....	88	85

¹ Percentages may not add to 100 due to rounding. Excludes Richmond, VA site where data on participants were available as of January 15, 1994.

nonparticipants report previous hospitalization for emotional problems and feeling depressed or sad.

Although the severity of health problems as indicated by reported bed days during the previous year is somewhat higher among nonparticipants than participants, a very high proportion of participants (26 percent) report being confined to bed for more than one of the previous 12 months. Overall, these data on health and functional limitations suggest that even those eligibles who volunteer for Project Network face substantial health and functional limitations, forming severe barriers to labor-force participation.

A high proportion of participants and nonparticipants report the presence of work limitations. As expected, a higher proportion of nonparticipants than participants report conditions that limit or prevent work. However, it is notable that as much as a fifth of nonparticipants report that they do not have conditions that limit their ability to work.

Participants also report transporta-

tion problems slightly less frequently than nonparticipants. Although most Project Network eligibles report no paid work for the last 12 months, a surprisingly high proportion of nonparticipants (23 percent) and an even higher proportion of participants (31 percent) report work during the last 12 months. Finally, Project Network focuses on a participant population that has not been reached by other VR efforts: Only 12 percent of project participants report received training and/or VR services during the previous 12 months.

Case Management Impact Analysis

The estimation of the impact of case management is the primary focus of the Project Network evaluation. The experimental design facilitates the measurement of the incremental effects of case management over-and-above any impact of the program waivers offered to both treatment and control group participants. Therefore, the demonstration will yield a measure of the effects of case management, given that waivers of

certain disability program features exist.

Also, it is important to remember that the evaluation will not attempt to measure the effects of the full set of services received by the treatment group against a benchmark of no service receipt. The evaluation is designed specifically to permit estimates of what a service delivery system such as Project NetWork adds to the existing support system for persons with disabilities.

The impact analysis will investigate four main categories of effects: (1) Employment and earnings; (2) transfer income (including DI and SSI payment and Medicare/Medicaid benefits); (3) health and functional status; and (4) other noneconomic outcomes (for example, outlook on life and self-esteem). These effects will be measured by direct comparison between treatment and control cases, based primarily on survey and Federal program administrative data. We expect positive outcomes in all major categories as a result of case management R&E services—that is, higher rates of employment, longer employment spells, higher earnings, lower transfer income payments, improved health and lower health costs, improved self-esteem, and so forth.

Various statistical techniques will be employed to estimate the size of case management impacts. Average outcomes for the treatment and control groups on key outcome variables will be compared, using simple difference-in-means estimates. More precise impact estimates can result from regression-adjusted impact measures. Dichotomous (0/1) outcome measures, such as whether an individual received DI benefits or was employed, will be analyzed using probit or logit regression models.

Censored data (data that are truncated at the time of measurement), such as an ongoing employment spell of unknown ultimate duration, will be supplemented using hazard rate adjustments to predict the complete duration of the episode. Also, nonexperimental methods will be used to adjust for the effects of any followup survey sample attrition that is detected. This will primarily occur because some respondents

to the baseline survey will not be available to be reinterviewed for the followup survey.³⁷

Waiver Analysis

For SSI only and concurrent (DI and SSI) beneficiaries and applicants, the 1619 program provides liberalized work incentives, and therefore the experimental estimates of case management effects are essentially expected to capture total project effects. However, for DI only participants there is the possibility that both case management and waiver effects exist. Therefore, the evaluation design includes a supplementary waiver effects analysis focusing on this group.

The central question in this analysis is: Did the added work incentives induce some disability beneficiaries to work who would not have done so otherwise? To answer this question, we will focus on the waiver-only control group. The most common approach is then to find an appropriate comparison group, whose members have similar personal characteristics but do not receive the waivers, to use as a "counterfactual" to observed outcomes. Identifying an appropriate comparison group is particularly difficult in Project NetWork, since all beneficiaries and SSI applicants who live in project sites are asked to volunteer for the project, and those who do are granted the waivers, while those who don't get no waivers. We assume that volunteers are more motivated and able to work than nonvolunteers, so nonvolunteers do not form a valid comparison group for the volunteers.

To overcome this limitation to measuring waiver effects, statistical (nonexperimental) techniques can be employed to approximate nonwaiver outcomes for participants that can be compared with their observed outcomes. One approach is to use regression estimates of post-waiver earnings, based on pre-waiver earnings, to simulate earnings patterns that would have occurred without the waivers.

Another approach to simulating waiver effects is to estimate the effects of motivation and ability (the main factors that differentiate between volunteers and nonvolunteers) and assume those

differences are the same before and after project participation. This can be done by measuring pre-project earnings differences between nonparticipants and control cases and subtracting that difference from observed differences between the post-enrollment earnings of the two groups.

A third approach is to create a statistical model of the project selection process, using linear or two-stage selection models, to statistically adjust for differences between the control group and the comparison group. Another option is to measure and exploit variations in the level of exposure to the waiver within the control group, if those with limited waiver exposure are otherwise comparable to those with greater exposure.

Another, potentially ideal, possibility exists for identifying a well-matched comparison group in Project NetWork. Because eligible beneficiaries are solicited in each of the project sites in quarterly waves of random fifths, it is possible to select a sample of as yet unsolicited beneficiaries (those scheduled for later waves of solicitation) to compare with current control group cases. These unsolicited beneficiaries constitute a random subsample of all project eligibles across all sites. Of even greater importance, the unsolicited beneficiaries whose interest in work exactly matches that of the control group will eventually reveal themselves by volunteering to participate once they are solicited.³⁸ Once they are revealed, we can look back on their behavior and outcomes up to that point as a reliable indicator of what control group members would have done absent the waivers.

Although this approach yields by far the most representative comparison group, it suffers from two limitations: (1) The comparison group can exist as such for no more than 12 months (the time between the first and last solicitation) and (2) the subsample of eventual control group members for which a full 12 months is available is relatively small (one-fifth of all control cases for each site). However, any differences in outcomes between the first and last solicitation cohorts over that 12-month

period can be confidently attributed to the waivers (or the perception of the waivers).³⁹

These techniques can be employed to measure the impact of the waivers on earnings, employment, and disability benefits. The most important of these in terms of SSA costs is the effect on disability benefits, where the waiver rules may substantially increase program costs by providing benefits to working beneficiaries who would not have received them otherwise. We intend to calculate the "worst-case" scenario wherein the waivers produce short-run costs and no long-run benefits for the trust funds. To do this, we will attempt to compare actual trust fund costs for the control group, which include the effects of the more generous program rules provided by the waivers, to simulated benefit costs calculated on the assumption that the waivers do not exist. This calculation will provide an upper bound to the range of possible waiver effects and will inform SSA of the maximum possible impact of the waivers provided in Project NetWork.

Using some or all of these methods, the evaluation will incorporate a sensitivity analysis using a variety of alternative econometric estimates designed to establish reasonable upper and lower bounds on likely waiver effects. This will allow the presentation of conservative estimates of the overall net benefits of Project NetWork interventions, despite some anticipated uncertainty concerning the exact magnitude of the DI waiver effects.

Demonstration Timeline, Generalizability, and Issues for Further Research

Timeline

As the Nation's first rigorous evaluation of R&E assistance to persons with severe disabilities, the Project NetWork evaluation will provide a wide range of information of interest to policymakers, researchers, and interest groups. Preliminary results on the characteristics of demonstration eligibles and participants, such as those presented here, will be

updated regularly and reported annually throughout the study period. Information related to the feasibility of the case management approach to providing R&E services for SSA's disability beneficiaries will be available by late 1995. A complete report on the baseline characteristics of eligibles and participants will be available not later than December 1996, with the full set of evaluation findings—including results from the participation, process, net impact, and benefit-cost analyses—available in December 1997.

Generalizability

Although the design of Project NetWork will not allow a direct extrapolation of results to the entire Nation, findings of significance to SSA field operations and insight on the efficacy of using alternate providers of VR services will result from the project. The similarity of SSA field offices in metropolitan settings nationwide means that information from Project NetWork regarding the administrative feasibility of managing programs of R&E services for DI and SSI disability beneficiaries in the field office setting will be generalizable to a large percentage of the over 1,300 district offices nationwide.

Primarily, SSA will learn from this experiment what the net impact of case/referral management was on participants, the trust funds, and society. In assessing the generalizability of the demonstration, the self-selection of the sites is a key factor. The evaluator will consider the effects of client and site characteristics on demonstration outcomes and will discuss the implications for generalizing the results. We anticipate that some of the factors related to generalizability can be quantified, while many others cannot. The more judgmental factors will be discussed in detail in the process study.

Issues for Further Research

As is the case for any large-scale demonstration project, it is not feasible to test all the variations of case management and alternate program options,

which are of interest to the Federal Government or to society. The following concepts have been discussed recently in various contexts as appropriate elements to include in future research.

DI benefit offset.—This concept would phase out disability benefits gradually as a beneficiary's earnings increase (for example, a \$1 reduction in benefits for each \$2 of earnings above a certain threshold).⁴⁰ Under the current DI program without the waiver protection provided under Project NetWork, disability benefits can be suspended or terminated when a beneficiary works at or above the SGA level, after the TWP is completed. In addition, Medicare coverage ends 27 months after benefits are suspended for SGA. These two features of the DI program are generally considered to be significant disincentives to work for DI beneficiaries. A gradual phase out of benefits would eliminate the "all-or-nothing" aspect of the existing program and would extend periods of benefit eligibility for Medicare. This recommendation has been proposed several times over the last 25 years, but no systematic test of an offset for the DI program has been conducted, and the costs and benefits of such a benefit structure are to date unknown.

Time-limited benefits.—Under this concept, SSA would assess the rehabilitation potential of applicants for DI or SSI disability benefits before benefits are awarded. Some applicants would be judged to be good candidates for R&E services and would be granted benefits for a specified period of time (for example, 1 to 2 years) during which R&E services would be provided. At the end of the period of temporary benefits, SSA would decide whether disability benefits should be terminated (for example, because the beneficiary is working) or continued on a permanent basis, as in the current disability programs. This approach would minimize the open-ended commitment to benefits that characterizes the current SSA disability programs and would incorporate some form of case management of R&E services, perhaps one of the models tested in Project NetWork.⁴¹

Applicant profiling.—A variation on the time-limited benefits theme would create profiles of persons with disabilities who either have no likelihood of being awarded benefits, because their medical conditions are not sufficiently severe (for example, those with broken bones that will heal within 2 months) or have conditions so severe that they should immediately be awarded permanent benefits (for example, those with terminal illnesses). With persons in these two extremes "screened out" for SSA-provided R&E services at the applicant stage, members of the middle group, who are probably sufficiently disabled to be awarded disability benefits but are not obviously too disabled to benefit from rehabilitation, would be evaluated for inclusion in an R&E program. Those for whom a program is determined to be feasible would be awarded benefits for a specified period of time as in the time-limited concept above.⁴²

These are just three of the many proposals related to the determination of disability and its effects on work that have been discussed by academics and government policy planners in recent years. Many of the existing recommendations for improvements in work incentives and coordination of R&E programs include changes to the structure of the disability program. However, the testing of additional DI program options cannot proceed without new title II demonstration authority, since section 505 authority expired on June 9, 1993.⁴³ Recent efforts to legislate permanent, broad title II demonstration authority, similar to section 1110 authority for the SSI program, have failed to receive support in the Congress. It is hoped that such authority will be established in the near future so that important demonstration projects such as Project NetWork can be initiated without extensive delay.

Conclusion

Project NetWork is the first large-scale randomized field experiment of case management of R&E services for SSA's disability beneficiaries. As such, the evaluation of Project NetWork by the

evaluator will yield precise, unbiased measurements of the net impact of case management services on the Social Security trust funds, project participants, and in terms of social costs and benefits. This information will add significantly to the body of knowledge related to the factors leading to participation in VR for beneficiaries and applicants and the efficiency and efficacy of R&E services for persons with severe disabilities. It will also provide disability and rehabilitation policy experts within and outside the Federal Government with invaluable insights into the pros and cons of existing disability and VR programs in encouraging and supporting work activity by persons with disabilities.

Notes

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¹ Unless otherwise specified, the term "beneficiaries" will be used here to refer to both DI beneficiaries and SSI disabled/blind recipients.

² Services to DI beneficiaries are funded through the Social Security trust funds. Vocational rehabilitation services for SSI recipients were provided (from general Federal funds) beginning in 1974.

³ Funding increased to 1.25 percent of DI benefits for fiscal year 1973 and 1.5 percent for fiscal year 1974 and subsequent years. The Federal Office of Management and Budget capped funding below the 1.5 percent spending limit starting in 1978.

⁴ See Comptroller General of the United States, "Improvements Needed in Rehabilitating Social Security Disability Beneficiaries," Report to Congress, May 13, 1976. Additional studies estimated the savings to be between \$1.14 and \$1.39 for each dollar spent; see Monroe Berkowitz et al., "Rehabilitating Social Security Disability Insurance Beneficiaries: The Promise and the Performance," New Brunswick, NJ: Rutgers University Press, January 1978; and Leo A. McManus, "Evaluation of Disability Insurance Savings Due to Beneficiary Rehabilitation," *Social Security Bulletin*, Vol. 44, No. 2 (February 1981), pp. 19-26.

⁵ Since fiscal year 1981, disability beneficiaries—like all persons served by State VR programs—have received services paid for by general Federal funds allocated by the Rehabilitation Services Administration (RSA) and matched by the respective States. The States may subsequently file a claim with SSA for reimbursement of the full (Federal plus State) cost of those services if the disability

beneficiary achieved 9 months of substantial gainful activity (SGA) following rehabilitation. The SGA levels for 1994 are \$500 per month for nonblind beneficiaries and \$930 per month for blind beneficiaries.

⁶ See P.L. 96-265, "The Social Security Disability Amendments of 1980," Section 505.

⁷ See Craig Thornton and Paul Decker, *The Transitional Employment Training Demonstration: Analysis of Program Impacts*, Princeton, NJ: Mathematica Policy Research, 1989, for a description of the TETD and its modestly favorable results. Stuart Kerachsky, Craig Thornton, A. Bloomenthal, Rebecca Maynard, and S. Stephens, *Impacts of Transitional Employment on Mentally Retarded Young Adults: Results of the STETS Demonstration*, Princeton, NJ: Mathematica Policy Research, 1985, summarizes the STETS results. Longer-term (6-year) impacts from TETD are measured in a followup study sponsored by ASPE. See Paul Decker and Craig Thornton, *The Long-Term Effects of Transitional Employment and Training Demonstration*, Princeton, NJ: Mathematica Policy Research, March 1994.

⁸ See Walter Y. Oi and Emily S. Andrews, *A Theory of the Labor Market for Persons with Disabilities*, Arlington, VA: Fu Associates Inc., 1992.

⁹ Using data on a cohort of 1972 new DI beneficiaries, Hennessey and Dykacz estimate that 36 percent of DI beneficiaries newly entitled in 1972 experienced death as the next event (rather than leaving the rolls due to recovery or reaching retirement age) and that only about 11 percent of beneficiary spells end with "recovery"—leaving the benefit rolls for reasons other than death or retirement. (See John C. Hennessey and Janice M. Dykacz, "Projected Outcomes and Length of Time in Disability Insurance Program," *Social Security Bulletin*, Vol. 52, No. 9 (September 1989), pp. 2-41. A more recent comparison of the 1972 and 1985 cohorts of new beneficiaries by the same authors shows a secular decline in recovery rates, suggesting that there will be fewer recoveries for beneficiaries who entered the DI program in the late 1980's than for those who came on the rolls earlier. (See "A Comparison of the Recovery Termination Rates of Disabled-Worker Beneficiaries Entitled in 1972 and 1985," *Social Security Bulletin*, Vol. 56, No. 2 (Summer 1993), pp. 58-69.) Both of the Hennessey and Dykacz analyses include "medical" and "work" recoveries in a common category, so the

portion of "work" recoveries is even lower than they report. Using the same data base, Bye and Riley report that 12.8 percent of all new DI beneficiaries die within 2 years of entitlement, ranging from a high of 64.5 percent for neoplasms to a low of 2.5 percent with a primary diagnosis of traumatic impairment. The proportion who die within 2 years was 22.5 percent with digestive and 25 percent with genitourinary impairments. (See Barry V. Bye and Gerald F. Riley, "Eliminating the Medicare Waiting Period for Social Security Disabled-Worker Beneficiaries," *Social Security Bulletin*, Vol. 52, No. 5 (May 1989), pp. 2-15. In addition, Muller finds that only 2.8 percent of a 1981 cohort of DI beneficiaries received work-related termination of benefits. (See L. Scott Muller, "Disability Beneficiaries Who Work and Their Experience Under Program Work Incentives," *Social Security Bulletin*, Vol. 55, No. 2 (Summer 1992), pp. 1-19.)

¹⁰ According to Hennessey and Dykacz, only 17 percent of new DI awardees are expected to stay on the rolls for 2 years or less, while 30 percent stay for 11 years or more. See "Projected Outcomes and Length of Time," 1989.

¹¹ Some examples of social benefits are earnings gains, improvements in health and functional ability, reduced health care expenditures, improved well-being and self-esteem, and reduced DI/SSI administrative costs. Examples of social costs are the net cost of conducting the demonstration and work-related expenses, such as the cost of transportation, assistive devices, and lost leisure/home production. Transfer payments, such as Social Security benefits, are a benefit to the recipient and an equal cost to taxpayers and are, therefore, neutral with respect to society in general.

¹² See Kerachsky et al., *Impacts of Transitional Employment*, 1985; Thornton and Decker, *The Transitional Employment Training Demonstration*, 1989; and Paul Decker and Craig Thornton, *The Long-Term Effects of the Transitional Employment Training Demonstration*, Princeton, NJ: Policy Research March 1994.

¹³ See John C. Wilkin, "Present Value of OASDI and Medicare Benefits for Newly Entitled Disabled Workers," (Actuarial Note No. 128), Office of the Actuary, Social Security Administration, September 1986.

¹⁴ See Janice M. Dykacz and John C. Hennessey, "Postrecovery Experience of Disabled-Worker Beneficiaries," *Social Security Bulletin*, Vol. 52, No. 9 (September 1989), pp. 42-66.

¹⁵ See John Bound, "The Health and Earnings of Rejected Disability Insurance Applicants," *The American Economic Review*, Vol. 79, No. 3 (June 1989), pp. 482-503.

¹⁶ A summary of the report can be found in Committee on Ways and Means, U.S. House of Representatives, *Overview of Entitlement Programs: 1992 Green Book*, Washington, DC: U.S. Government Printing Office, 1992, pp. 68-69.

¹⁷ McManus, "Evaluation of Disability Savings," 1981.

¹⁸ Voluntary participation is a requirement of any Department of Health and Human Services research project affecting individuals. This aspect of the demonstration does not imply any presumption regarding the appropriate degree to which participation in actual government programs should be voluntary.

¹⁹ There have been two previous experimental evaluations of employment and training programs where random selection of sites was part of the evaluation design. Two of the authors of the current article played major roles in the design of those two evaluations, the Food Stamp Employment and Training Program (FSETP) Experiment (Rupp) and the National JTPA Study (Bell). One of the major differences between those two experiments and Project NetWork was that both the FSETP and JTPA experiments were evaluations of ongoing national programs.

²⁰ This is currently what SSA claims representatives are instructed to do for applicants and beneficiaries under normal SSA field operations.

²¹ See, for example, Burt S. Barnow, "The Impact of CETA Programs on Earnings: A Review of the Literature," *The Journal of Human Resources*, Vol. 22, No. 2 (Spring 1987), pp. 157-193; and Edward C. Bryant and Kalman Rupp, "Evaluating the Impact of CETA on Participant Earnings," *Evaluation Review*, Vol. 11, No. 4, (August 1987), pp. 473-492. A more recent assessment of alternative comparison group methodologies for employment and training program evaluation appears in Stephen H. Bell, Glen G. Cain, Larry L. Orr, and John Blomquist, *Measuring Employment and Training Program Impacts with Data on Program Applicants*, Kalamazoo, MI: The W.E. Upjohn Institute for Employment Research (forthcoming).

²² See, for example, Joshua D. Angrist, "Lifetime Earnings and the Vietnam Era

Draft Lottery: Evidence from Social Security Administrative Records," *The American Economic Review*, June 1990, pp. 313-336.

²³ See David Greenberg and Mark Shroder, *Digest of Social Experiments*, Institute for Research on Poverty (Special Report No. 52), Madison, WI: University of Wisconsin-Madison, 1991, for a summary of these and other previous social experiments.

²⁴ The comparison is preliminary in that it includes only 5,660 participants—those randomly assigned through January 13, 1994—from a target total of 8,400.

²⁵ See, for example, James J. Heckman and R. Robb, "Alternative Methods for Evaluating the Impact of Interventions," in *Longitudinal Analysis of Labor Market Data*, edited by J. Heckman and B. Singer, Cambridge, MA: Cambridge University Press, 1985; and Bryant and Rupp, "Evaluating the Impact of CETA on Participant Earnings," 1987.

²⁶ Sections 1619(a) and (b) of the Social Security Act allow the continuation of cash and medical benefits even if work is performed at or above the SGA level.

²⁷ For more detail, see Stephen H. Bell, et al., *Project NetWork Evaluation: Research Design*, Bethesda, MD: Abt Associates Inc., chapter 7 (forthcoming).

²⁸ Jane Kulik and Stephen H. Bell, in *Project NetWork Evaluation: Random Assignment and Survey Sampling Plan*, Bethesda, MD: Abt Associates Inc., 1992, describes this process.

²⁹ We define "minimum detectable effect" as the smallest real difference between treatment and control groups that would be detected by a test of statistical significance 80 percent of the time using a two-tailed test with a 0.10 significance level. Smaller minimum detectable effects will actually apply once the data are adjusted for chance differences between the baseline characteristics of the treatment and control samples, with the exception of earnings during the 24 months following demonstration entry (where those adjustments have already been taken into account).

³⁰ For purposes of the calculations, we assumed that the mean monthly DI benefit amount for the Project NetWork followup period will be \$587, with a standard deviation of \$224, which equal the mean and standard deviation for all DI beneficiaries in the last quarter of 1990. (See *Annual Statistical*

Supplement, 1991 to the *Social Security Bulletin*).

Both employment status and positive outlook on life are 0/1 variables assumed to have means of 0.3 during the followup period, with implied variances of 0.21. The mean and standard deviation for earnings during the 24 months after demonstration entry are assumed to be \$1,556 and \$3,001, respectively, based on followup earnings measures for the TETD evaluation sample of young SSI recipients with mental impairments. (See Thornton and Decker, *The Transitional Employment Training Demonstration*, 1989.)

³¹ The relevant longitudinal files in the administrative data system are the Master Beneficiary Record (MBR) of benefit information on DI beneficiaries, the Supplemental Security Record (SSR) of benefit information for SSI recipients, and the Master Earnings File (MEF) of annual earnings information for persons employed in jobs covered by the Social Security system. The National Disability Determination Services System (NDDSS) file of information on the application for disability benefits and the disposition of that application will also be used in the evaluation.

³² See Bell et al., *Project NetWork Evaluation: Research Design*, 1994, appendix A, for a copy of the survey questionnaire, which was developed initially by Lewin-ICF, Inc., under contract with ASPE and SSA. David Stapleton and Burt Barnow, "Background Paper: Project NetWork Baseline Survey," Fairfax, VA: Lewin-ICF, Inc., January 1992, provides rationales and precedents for the survey's sample and questionnaire design.

³³ The target response rate for the followup survey is 80 percent, resulting in 1,100 completed treatment group interviews and 1,100 completed control group interviews.

³⁴ The TWP is actually 9 months with a 3-month "grace period" of guaranteed benefits before benefit suspension for continued SGA. The corresponding diagram for the typical SSI recipient is similar, and applies from the very beginning of benefit receipt (since SSI rules do not provide a TWP). The one difference concerns the slope of the line segment between points M and A, which is more gentle for SSI recipients due to the gradual "phasing out" of SSI benefits as hours and, therefore, earnings increase. Because of its gentler slope, the SSI version of the MA segment eventually joins the right-hand portion of the overall line without a vertical drop in income at point A.

³⁵ See Kalman Rupp, Edward C. Bryant, and Richard E. Mantovani, *Factors Affect-*

ing the Participation of Older Americans in Employment and Training Programs, Washington, DC: National Commission for Employment Policy, 1983.

³⁶ For further details, see Bell et al., *Project NetWork Evaluation: Research Design*, 1994.

³⁷ This effect is expected to be small for Project NetWork, since the whereabouts of project participants or their representatives are generally known to the SSA administrative data system, at least as long as beneficiaries continue to receive disability payments.

³⁸ The participants from the first solicitation cohort and the eventual participants from the last solicitation cohort represent random subsamples from the same population, one with waivers and the other without—essentially the exact equivalent to an experimental sample based on random assignment.

³⁹ There are computational methods for extending the observational period beyond the 12-month limitation. These will be tested and employed where feasible.

⁴⁰ This is a current feature of the SSI program for disabled and blind recipients. It is also used to phase out benefits when retired beneficiaries have earnings.

⁴¹ The 1987 Disability Advisory Council recommended a model demonstration program that contained a short-term (4 months), reduced (50 percent) benefit to begin about one month after application for disability benefits for individuals who were judged capable of rehabilitation. See *Report of the Disability Advisory Council*, Social Security Administration, Department of Health and Human Services, March 1988, appendix K.

⁴² A recent paper by two experts in Federal disability programs and policy proposed a model with three categories of benefits: Permanent (no possibility of functioning in the work place), temporary (capable of being rehabilitated), and early retirement (optional permanent benefit for applicants, aged 55 or older, who might benefit from R&E services but who decide that they do not want to attempt work). Those in the temporary category, including those aged 55 or older who want to work, would receive a time-limited benefit while receiving R&E services. See Andrew I. Battavia and Susan Parker, "From Disability Rolls to Payrolls: A Proposal for Social Security Program Reform," (draft), October 1992. This proposal contains several additional innovative recommendations for SSA's disability programs.

⁴³ Demonstrations such as Project NetWork, which had substantially begun before the expiration date, are allowed to run to completion. No new projects that require waivers provided by section 505 authority can begin after the expiration date. There currently is no legislative authority to waive title II program provisions.

Appendix table I.—Selected baseline characteristics of Project NetWork participants, by experimental status¹

Characteristic	Treatment group	Control group	Characteristic	Treatment group	Control group
Sample size.....	2,889	2,771	Body system affected by primary disabling condition—Continued		
Total percent.....	100	100	Mental.....	39	39
Sex:			Neoplastic diseases/malignancies.....	2	2
Male.....	59	59	Multiple body systems.....	5	5
Female.....	41	41	Other.....	8	8
Age:			Years receiving disability benefits:		
Less than 21.....	2	3	New SSI applicant.....	23	22
21–30.....	18	18	Less than 2.....	17	17
31–40.....	30	32	2–3.....	20	21
41–50.....	28	28	4–5.....	12	12
51–60.....	19	18	6–7.....	9	9
Over 60.....	2	2	8–9.....	6	6
Education:			10–11.....	4	4
High school dropout.....	24	25	12 or more.....	10	10
High school graduate.....	44	43	Type(s) of disability:		
Some college.....	22	23	DI only.....	44	45
College graduate.....	10	9	SSI only.....	30	29
Years since onset of disability:			Both DI and SSI.....	26	26
New SSI applicant.....	22	22	Average monthly disability benefits for those receiving—		
Less than 2.....	14	13	DI.....	\$562	\$559
2–3.....	18	20	SSI.....	277	284
4–5.....	14	13	Demonstration site:		
6–7.....	10	9	Dallas, TX.....	20	21
8–9.....	6	6	Fort Worth, TX.....	13	13
10–11.....	5	5	Phoenix, AZ/Las Vegas, NV.....	16	17
12 or more.....	12	13	Minneapolis, MN.....	13	11
Body system affected by primary disabling condition:			New Hampshire.....	14	14
Musculoskeletal.....	20	19	Richmond, VA.....	11	11
Senses/speech.....	4	5	Tampa, FL.....	12	11
Respiratory.....	2	2	Spokane, WA/Coeur d'Alene, ID.....	12	13
Cardiovascular.....	5	4	Demonstration model:		
Digestive.....	1	1	SSA case manager.....	33	34
Genitourinary.....	2	2	Private company.....	29	28
Hemic and lymphatic.....	1	1	VR outstationing.....	14	14
Skin.....	0	0	SSA referral manager.....	24	24
Endocrine.....	2	2			
Neurological.....	10	10			

¹Percentages may not add to 100 due to rounding. Participants through January 13, 1994; excludes Richmond, VA site where data are not available; includes pilot phase participants in the New Hampshire site.