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TECHNICAL REPORT

Research Designs for Estimating Induced Entry into the SSDI Program Resulting from a Benefit Offset

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LABOR AND POPULATION

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Summary

To support the Social Security Administration (SSA) in fulfilling its legislative mandate under the Ticket to Work Incentive and Work Incentives Improvement Act (P.L. 106-170; the Ticket Act), this report has the principal aim of providing SSA with a set of research design options for estimating induced entry effects of a proposed $1-for-$2 benefit offset for its Social Security Disability Insurance (SSDI) program. Whereas under current program rules, SSDI beneficiaries who have completed their Trial Work Period (TWP) and who earn more than the threshold for Substantial Gainful Activity (SGA)—currently set at $1,000 per month—are ineligible to receive benefits (that is, they lose their benefit entirely), under the proposed benefit offset policy these individuals would retain $1 in benefits for every $2 earned above the SGA. Thus, a benefit offset may induce entry because it makes participation more attractive for individuals who are medically eligible for SSDI benefits but able to earn more than the SGA. The size of the population of induced entrants is a critical input into an analysis of the effects of a benefit offset policy on overall program costs.

Although the Ticket Act included induced entry effects among the set of effects to be evaluated with a demonstration project, SSA has determined that a demonstration project aimed at estimating induced entry is not feasible (Tuma, 2001). As a result, SSA must now determine an alternative method of fulfilling its mandate under the Ticket Act. In service of that goal, this report is designed to provide SSA with two carefully selected research design options to estimate induced entry under the proposed benefit offset policy, as well as the information needed to evaluate each design on several dimensions: internal validity, external validity, flexibility, economy (cost), and speed.

To accomplish these objectives, we first performed an extensive literature search and prepared a list of candidate research designs. In January 2010, we convened a meeting with SSA and our Technical Advisory Group (TAG), consisting of experts on the SSDI program and research methods for estimating entry effects, where we presented this list of candidate designs. After consultation with the TAG and SSA stakeholders in attendance, two research designs were identified as the most promising:

- a research design using **stated preferences (SP)**
- a research design using **past policy (PP) changes** in a simple structural framework.

In the remainder of this summary, we highlight key findings with respect to the study objectives.

Theoretical Framework for Induced Entry

One important contribution of this report is to develop a simple theoretical framework for understanding the mechanisms that give rise to induced entry. This framework provides a rigorous yet intuitive starting point for an analysis of induced entry. The model is dynamic, forward-looking, and yields steady-state conditions for SSDI claiming and employment behavior. The model identifies several factors, such as health insurance, that figure into the decision to apply for SSDI benefits. More importantly, the model identifies a group of disabled, nonbeneficiary workers who would be better off claiming SSDI under the benefit offset policy but not under the current policy, and thus could be induced to enter the SSDI program. This group consists of individuals with earnings in a particular range defined by the SGA threshold, the benefit offset rate, and the individual's monthly benefit amount. This condition plays an important role in defining the sample frame for the research design using stated preferences.

Research Design Using Stated Preferences

A promising method for estimating potential entry effects as a result of a $1-for-$2 benefit offset is a research design using the stated preferences method. In this method, one administers a series of stated choice experiments designed to reveal respondents' preferences for claiming disability under varying program rules and economic conditions. In particular, the SP approach consists of presenting respondents with a set of scenarios describing different states of the world and asking them to rate, rank, or choose among different possible actions (e.g., continuing to work versus claiming disability under varying conditions). The scenarios are characterized by either real or hypothetical attributes (or a mix of both), such as a benefit offset rate or earnings disregard level, and allow one to estimate the impact of a *hypothetical* policy that has never been experienced by respondents.

Sampling Plan

An important feature of the SP design is that it requires new data collection. Because the target population—potential induced entrants—has unknown characteristics and is likely small relative to the general population, a critical issue is how to sample and screen respondents. As noted above, economic theory offers a useful guide for winnowing down the sampling frame to individuals in a particular range of earnings, who are most likely to make up the target population. We identified two potential sampling frames as promising candidates for an SP-based research design:

- We identified the **SSA administrative database** of U.S. workers as an ideal sampling frame, since it includes every worker insured for SSDI benefits in the United States and their history of earnings and benefit receipt. Since health information is not available in SSA's administrative data, individuals cannot be sampled on the basis of their likelihood of medically qualifying for the SSDI program. A health screener, such as the 26-item screener developed by Westat in 2002 for the National Study of Health and Activity (NSHA), could identify respondents with health conditions that may qualify them for the program. However, because the medically eligible

population is very small, at most one-quarter of those screened would likely be included in the final survey.

- We also identified the **American Community Survey (ACS)** as a potential sampling frame. The ACS surveys roughly 1.5 million individuals ages 25–64 per year. Linking the ACS to SSA administrative data would allow one to narrow the sample frame to individuals with earnings in the appropriate range who are eligible for but not receiving SSDI benefits. The advantage of the ACS is that it already includes six questions on disability that can be used to pre-screen respondents. An additional health screener, such as the Westat screener, could be used to further refine the sample. However, additional research is needed to determine the fraction of individuals likely to pass the screen.

Experimental Design

As noted above, the SP design consists of asking respondents to imagine their behavior under a series of hypothetical scenarios. We identified three variations on the SP design that could be used to estimate induced entry:

- The **baseline** approach is the simplest approach, designed to yield an estimate of induced entry under a $1-for-$2 benefit offset in an otherwise unchanged program environment. This approach consists of describing the benefit offset to currently disabled nonbeneficiaries and asking whether they would apply for SSDI benefits under the new policy. This approach is by far the most expensive to implement, on the order of $2.1 million, assuming a sample frame based on SSA administrative data (excluding pilot testing and other survey-design activities). Moreover, the baseline design does not offer any flexibility to estimate responses to variations of the benefit offset policy.
- A **baseline plus** approach goes a step further and specifies a statistical model for SSDI claiming as a function of proposed program parameters (e.g., offset rate, disregard level) and current program parameters (e.g., the SGA level), known as attributes. This design is extremely flexible and reduces costs substantially by imposing modest structure on the estimation problem with few additional assumptions. Additionally, it is possible to conduct *randomized* choice experiments by randomly varying hypothetical attributes over respondents, which maximizes statistical power by setting the correlation between attributes to zero. If respondents each rate several profiles (scenarios consisting of different attributes), then sample size can be further reduced. Estimated implementation costs for a baseline plus design varying two attributes, each with 3–4 levels, and asking respondents to rate 6–12 profiles range between $381,000 and $632,000.
- Finally, we propose an **alternative** method that achieves cost savings by eliminating the need to screen out 75 percent of the sample based on health. We do so by recasting health itself as an attribute to be specified explicitly in the hypothetical scenarios presented to respondents. Introducing health as an attribute has the added advantage of allowing one to control for health in a uniform way by designing scenarios specifically based on SSDI medical eligibility criteria. Estimated

implementation costs for an alternative design asking respondents to rate 5–15 profiles range between $204,500 and $354,000.

Summary Evaluation

The SP approach is extremely flexible and allows program parameters and other attributes of the scenarios to be varied easily. In addition, it requires very few assumptions regarding specification of the individual's decision environment. The key assumption for identification is that respondents are able to accurately forecast their behavior under new and unfamiliar policy conditions. In addition, using health as an attribute of choice scenarios and surveying individuals who are not medically eligible requires the additional assumption that individuals can forecast their behavior under different *health* conditions. Although new data collection is costly, SSA administrative records and the ACS provide inexpensive yet comprehensive sample frames. In addition, presenting respondents with multiple, randomized scenarios leads to impressive reductions in sample size without sacrificing statistical power.

Research Design Using Past Policy Changes in a Simple Structural Approach

This research design leverages past changes in the SGA threshold to estimate key behavioral parameters that could be used to forecast entry behavior. The SGA threshold is a fundamental program parameter, determining both initial eligibility and ongoing entitlement to SSDI benefits, and it figures directly into the current work rules. These past policy changes are closely related to the introduction of a proposed benefit offset, as they both modify the shape of the budget constraint that potential entrants face. This research design is composed of two parts: (1) a reduced form analysis of the impact of SGA changes on SSDI applications/enrollment, which provides a potential test of whether one might expect any induced entry under a benefit offset, and (2) a simple structural analysis, which relates the reduced form estimates to induced entry under a specific $1-for-$2 benefit offset or a range of offset policies.

Reduced Form Analysis

There is significant variation in real SGA levels over time, including increases, decreases, and periods of relative stability. SSA has increased the (nominal) SGA threshold several times in past decades, including large increases in 1990 and 1999. At the same time, inflation has led to real declines in the SGA before and in between these increases. Since December 2000, the SGA threshold has been indexed to a measure of annual average wages for all employees in the United States. In addition, the SGA level is relatively more generous in areas with lower costs of living and/or lower average wages. Therefore, there is considerable variation in the SGA level across time and *space* (e.g., states or counties) when considered in relative terms. One can construct a measure of real, relative SGA levels by dividing the Consumer Price Index–adjusted national SGA level by a state- or county-level index of average wages. Using SSA administrative data, one can then regress SSDI application and/or enrollment rates at the state-year level on real, relative SGA levels along with controls for changes in macroeconomic conditions (i.e., state and year fixed effects, and such variables as state-level unemployment rates). Since the SGA threshold is such a fundamental program parameter—

affecting both entry and ongoing entitlement—failure to detect an effect of past SGA changes on SSDI entry might lead one to expect little or no change in entry in response to a proposed benefit offset.

Structural Analysis

While raising the SGA threshold is not *equivalent* to introducing a benefit offset, both policy changes affect approximately the same area of the budget constraint faced by potential entrants. As a result, one could relate the SGA-induced entry effect to the benefit offset setting using a simple structural framework. Specifically, one could specify a utility maximization problem where individuals jointly determine their labor supply and SSDI program participation. Once one assumes a functional form for labor supply (or, equivalently, the indirect utility function), specifies a role for observable individual characteristics, and assumes a distribution for unobservables, the model could be estimated using maximum likelihood or method of moments. Once one has obtained estimates of the utility function parameters, one could apply them to the hypothetical budget constraint under the proposed benefit offset to simulate who would apply for SSDI under the new program. An estimate of induced entry can then be obtained by subtracting the number of applicants under the current policy from those under the proposed benefit offset policy. In this framework one could make use of three sources of identification:

- The **discontinuity** in the budget constraint arising from the presence of the SGA threshold—in principle, past policy *changes* are not necessary to identify the parameters of the model, as revealed preference under a nonlinear budget set in cross-section is sufficient to identify the model, with certain assumptions (Moffitt, 1990). One assumption is that observed nonlabor income is exogenous.
- Bringing sufficiently large **SGA changes** (across time or space) into the analysis allows one to relax assumptions about the income elasticity of program participation with respect to benefits. Intuitively, individuals who previously earned more than the old SGA but less than the new SGA experience a local outward shift in their budget constraint, as they are now eligible for SSDI benefits. The receipt of SSDI benefits increases their total net income (earnings plus benefits) without affecting their net wage rate (the amount they can keep as income if they work an additional hour). This allows one to identify the income elasticity without additional assumptions about nonlabor income. Incorporating SGA changes allows one to explicitly link the proposed reduced form and structural analyses. Specifically, one could estimate the model using a method of moments strategy and include the estimated reduced form effect as a moment to be matched.
- Finally, the induced entry project is only part of a portfolio of projects funded by SSA to estimate potential impacts of a benefit offset. Another such project is the **Benefit Offset National Demonstration (BOND)** project, which is investigating the effect of the benefit offset on the labor supply of current beneficiaries. The BOND gives one the opportunity to observe actual responses to the exact change in budget constraint under the benefit offset. A critical drawback of the BOND for the purpose of estimating induced entry is that it only provides information on labor supply; that

is, by design, it does not include information on the *participation* decision. However, the BOND does provide a valuable opportunity to incorporate additional variation into the estimation (e.g., by including an additional moment to be matched) or to test the ability of the model to make out-of-sample predictions.

Summary Evaluation

This research design is fast and inexpensive. It utilizes data on the group most likely to approximate marginal entrants under a benefit offset, actual SSDI applicants. In addition, it provides a fair amount of flexibility in that it would be easy to modify the budget constraint in the decision problem used to simulate behavior under hypothetical rules. A drawback of the approach is that it relies heavily on distributional and functional form assumptions. However, opportunities abound for testing and relaxing some of these assumptions by exploiting the "natural experiments" arising from past SGA changes as well as an actual randomized experiment, the BOND project.

Both research designs were determined to be capable of providing SSA with credible estimates of induced entry into SSDI resulting from a benefit offset with relatively small sets of assumptions. In addition, both approaches offer a great deal of flexibility and allow for a range of estimates that would provide valuable insight into how potential SSDI applicants make decisions regarding program participation. While both research designs produce partial-equilibrium "steady-state" estimates of induced entry, they yield parameter estimates that could be used to forecast entry over time, accounting for changing economic and demographic conditions (e.g., trends in population aging, health, and labor demand). In a head-to-head comparison, there is no clear winner, as both research designs are strongest on different criteria. Whereas the SP design may offer slightly greater flexibility and require fewer and weaker assumptions, the PP design is cheaper, faster, and uses data on individuals who most closely approximate marginal entrants. As SSA has stressed a strong desire for a *range* of plausible induced entry estimates, one promising avenue for further research is to implement both research designs and compare the results.