

A Longitudinal Analysis of Entries and
Exits of the Low-Income Elderly to and from
the Supplemental Security Income Program

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Abstract

This paper is the first to analyze eligibility and participation spells and estimate dynamic models of SSI participation by the aged. We first describe eligibility and participation spells and estimate competing-risk models of the determinants of transitions. Next, we present evidence of extensive measurement error in the expected SSI benefit and the associated imputed eligibility status of sample members. We compare and contrast two approaches to ameliorating this error. A cross-section approach exploits self-reports of participants' benefits, and a longitudinal approach makes inferences from time variation in the computed benefit. We find that the hazard model estimates vary little with regard to whether or which particular measurement error correction is employed. Finally, the longitudinal patterns of eligibility and participation suggest that take-up rates among the persistently eligible are nearly 80 percent.

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I. Introduction

A substantial fraction – as much as one-half – of the low-resource elderly who appear qualified for Supplemental Security Income (SSI) fails to enroll in the program. This paper seeks to understand this phenomenon by studying the dynamics of SSI eligibility and participation spells. Ours is the first study of SSI take-up to focus on its longitudinal dimension. Key issues that can only be addressed in a dynamic context are the role of individuals' eligibility duration expectations on program take-up and the degree to which eligibility without participation is concentrated in groups that are persistently program-eligible. Understanding differences in exit and entry behavior of welfare participants is also key for interpreting and forecasting aggregate caseload movements (e.g., see Haider and Klerman, 2005, and Klerman and Haider, 2004, with respect to the AFDC/TANF program).

If the phenomenon of 'nonparticipating eligibles' is chiefly an issue of individuals choosing not to participate during fleeting periods of eligibility, the SSI program may still be very effective in achieving its income support goals, even in the face of fairly low static take-up rates. On the other hand, if people in deep and persistent poverty do not enroll in SSI, this suggests that the program is failing in a fundamental respect. The study of SSI participation is further complicated by the fact that individuals may come into the program through either its disability or aged provisions, and the types of individuals entering and the determinants of entries through these two distinct portals may be quite different.

Studying these issues requires longitudinal data. One must characterize who is persistently needy and program-eligible to assess whether SSI is meeting its poverty-relief goals. Longitudinal data are required to test whether participant behavior is forward-looking. We examine whether eligible participants are less likely than nonparticipating eligibles to transition

to a state of ineligibility. If so, this is consistent with the notion that SSI participants are a self-selected group among eligibles; they have chosen to participate in the program because they expect to remain eligible for a sufficient length of time to justify the associated transaction costs. As noted, at a given point in time, the aged in SSI consist of two groups; those who have qualified by age and need alone, and those who have ‘aged in’ from the disability component. Longitudinal information is required to tell these two types of aged participants apart.

Our descriptive analysis of eligibility and participation spells, similar to the analysis of AFDC and Food Stamps by Blank and Ruggles (1996), provides evidence consistent with rational SSI participation behavior. However, the interpretation of this evidence is complicated by the serious difficulties in accurately assessing program eligibility in the two widely used household data sets that we employ. We document the extent of this measurement error problem and find that its nature poses a serious challenge to the validity of take-up and related estimates that ignore it. To investigate its implications further, we implement two corrections for measurement error – one originally proposed by McGarry (1996) and another that exploits the availability of longitudinal data. We contrast duration model estimates of transitions into and out of both SSI participation and nonparticipating SSI eligibility with and without these corrections.

The paper proceeds as follows. Section II discusses prior work on program participation, focusing on studies of SSI and studies of other programs that take a dynamic approach to program participation. Section III describes the two data sources for this project, the Health and Retirement Study (HRS) and the Survey of Income and Program Participation (SIPP). Section IV provides detailed descriptive information on SSI eligibility and participation spells. Section V presents competing risk hazard model estimates of exits from spells of SSI ineligibility and SSI nonparticipating eligibility. Section VI provides empirical evidence on the troubling extent

of measurement error in prospective benefits and hence eligibility status. In Section VII, we describe two alternative approaches to accounting for eligibility errors, present alternative dynamic estimates of eligibility and participation transitions, and discuss findings from competing risk hazard models of SSI entries and exits using these schemes. Section VIII concludes.

II. Prior Work

Prior Work on SSI Participation

The phenomenon of SSI nonparticipating eligibles has been a policy concern since the program's inception. McGarry (1996) and Warlick (1982) estimate take-up rates in the early era of the program, while Hill (1990) and Coe (1983) use a special survey on SSI use in the PSID to explore information barriers to take-up. Yelowitz (2000) also considers the role of the Medicaid benefit in attracting the aged into SSI. All of the models employed in these studies are static and the findings can generally be interpreted as supporting the notion that nonparticipation reflects rational decisionmaking. McGarry (1996) finds that the expected SSI benefit strongly influences take-up, while Yelowitz finds that both the SSI benefit and the availability of Medicaid outside of SSI influence SSI participation in expected ways. Hill's (1990) work also suggests that those with little to gain from the SSI program rationally choose not to become informed about it.

Until recently, measurement error was given short shrift in the welfare participation literature, even though its presence may generate patterns that cannot be identified from those generated by rational behavior. For example, nonparticipation in the face of a very small positive expected benefit appears rational, but what if the researcher's calculation is slightly wrong, and the actual expected benefit is very small but *negative*? In that case, the household is

ineligible for SSI and cannot choose participation. The household's presence in the analysis sample is a mistake, and in the case of classical measurement error, the direction of influence of this classification error bias is in fact unpredictable (Pudney, 2001, details the complex implications of the measurement error problem for probit estimates of take-up). Within the SSI literature, only McGarry (1996) attempts to control for this problem by introducing a weighting scheme based on the assumption that measurement error in the researcher's guess of prospective eligibility is normally distributed. The difference between the researcher's best guess of the expected benefit and self-reported benefits of program participants provides an estimate of the variance of the measurement error.¹

Prior Work on Program Participation with a Longitudinal Focus

Blank and Ruggles (1996) comprehensively examines the eligibility and participation spells of female-headed households in the AFDC and Food Stamp programs. Four major stylized facts emerge from this analysis. First, single mothers use the AFDC program in about two-thirds of total eligible months. Second, there are many short eligibility spells, and these seldom result in participation; only 28 percent of eligibility *spells* result in receipt. Participation occurs disproportionately during longer eligibility spells, as one expects if participation decisions are rational and program entry is costly. Third, eligible female heads don't waste time getting onto welfare – 71% of AFDC participation spells start in the first month of eligibility, and the probability of take-up declines precipitously thereafter. The entry hazard has a strong profile – if entry does not occur almost immediately, it is unlikely to occur at all. Finally, Blank and Ruggles (1996) find that many families appear to leave AFDC prematurely, in the sense that they

¹ Gunderson and Kreider (2006) and Hernandez and Pudney (2007) take approaches to measurement error problems in other programs that involve more detailed modeling of the error process.

appear to remain eligible after the participation spell ends. Fully half of those exiting AFDC are still eligible in the first period after exit, and a substantial share (30 percent) are eligible 6 months after exiting.

III. Data Sources

We use two data sources for this project. While the HRS has the advantage of a long time frame, the data collection is low-frequency and the reference period is annual. In contrast, the SIPP is high-frequency, but the time frame is short. In part, the SIPP findings are used to better understand whether or not the dynamic phenomena discovered in the HRS are largely artifacts of its design; in fact, we find below that many findings from the SIPP and HRS are surprisingly similar.

The Survey of Income and Program Participation

The SIPP is a large representative sample of the U.S. population. In a typical panel of the SIPP, approximately 50,000 households are interviewed every four months for 2 to 3 years. At each interview ‘wave,’ respondents are asked about their income, program use, and other activities during each of the prior 4 months. In principle, SSI eligibility and participation in the SIPP can be computed on a monthly basis.

While the SIPP, unlike the HRS, does not focus on the elderly, it has the advantage of beginning with a quite large household sample. In addition, since the panel is repeated over time, a large number of elderly households can be assembled by pooling panels. A fundamental shortcoming of the SIPP for the purposes of this study is its short window of observation. Because transitions into and out of SSI participation are likely to be fairly infrequent (in contrast

to transitions of nonelderly households in and out of Food Stamps and AFDC), relatively few such transitions will be recorded for the same household.

To construct our SIPP analysis data set, we pool households from the 1987, 1989, 1990, 1991, 1992, and 1993 panels. The 1988 panel is omitted because it contains no asset information. In this version of the paper, our unit of observation is ‘person-wave.’ We use income and program information from the fourth month of each wave and assume that the information is the same in the prior three months. Given the well-known feature of ‘seam bias’ in the SIPP—that changes in variables like welfare participation status tend to be reported from wave to wave, rather than month-to-month within waves—our findings are unlikely to change notably were we to move down to the true person-month unit of observation.

The SIPP contains high-frequency information on many variables, including the income variables needed to assess income-eligibility for SSI, program participation, and the SSI benefit receipt amounts of participants. The usual complement of demographic variables is also available, as is detailed information on household structure. State-of-residence geocodes in the SIPP enable us to apply the state-specific SSI benefit to each person. Asset data are typically collected twice during a panel at one-year intervals. In each panel, we select the asset topical module that has the most complete accounting of assets and liabilities useful for assessing a person’s asset eligibility for the SSI program.²

Table 1 presents the basic features of the SIPP sample, which represents 29,418 elderly individuals. Collectively, they experience 15,903 periods (waves) of SSI eligibility and 10,319 periods of SSI participation. We often analyze ‘spells,’ or continuous runs of eligibility and

² The procedures for assessing income and asset eligibility for both the HRS and the SIPP are available from the authors upon request.

participation. There are 2,539 SSI eligibility spells and 1,520 SSI participation spells in the SIPP.

The Health and Retirement Study

The HRS is a representative sample of the U.S. population aged 51 and older. Interviews began in 1992 with a base cohort aged 51-61 and an older cohort (AHEAD) aged 70 and above. In 1998 and 2004 new cohorts were added to cover all ages over 50. Interviews are conducted every other year, and information needed for computing eligibility and information about program participation is collected with reference to ‘last year.’ Note that unlike in the SIPP, we cannot compute the monthly eligibility that is the actual basis for determining SSI program eligibility. This inevitably introduces additional measurement problems. For example, a respondent in the HRS may be SSI-eligible for part of the previous year, yet correctly classified as ‘ineligible’ on the basis of annual income. Similarly, a person may have been SSI-eligible on an annual basis but actually ineligible for some portions of the year.

We use both asset and income information in the HRS to assess program eligibility. At the time of this writing, HRS geocodes were not available to us. Therefore additional measurement error is introduced because we can only apply the federal component of SSI rules to all HRS sample members, regardless of their own state’s policies (this will be corrected in future revisions). Overall, this problem results in an understatement of SSI eligibility.

Table 1 presents the basic features of the HRS sample, which consists of repeated observations on 24,161 elderly individuals. There are 4,058 periods (years) of SSI eligibility and 3,248 periods of SSI participation. These are organized into 2,539 SSI eligibility spells and 1,520 SSI participation spells (i.e., reported eligibility or participation status in consecutive survey waves is unchanged).

Comparative Descriptive Information

Table 2 presents means sample characteristics for both the SIPP and HRS. Overall, the first two columns suggest that SIPP and HRS sample members have fairly similar characteristics. Average age, health status, and marital history are similar. There are somewhat more minority members and women in the SIPP. Education patterns differ between the two samples. While a smaller share of SIPP sample members report high school incompleteness than those in the HRS, a greater share claim to have graduated college. The imputed SSI eligibility rates for the two samples are similar; 7 percent of HRS sample members are assessed to be SSI-eligible, as opposed to 7.9 percent of SIPP sample members. SSI recipiency rates for both samples are around 5 percent.

The subsequent columns of Table 2 indicate the characteristics of the subsamples of sample members who are assessed to be SSI-eligible after applying SSI rules to their incomes and assets. Columns 3 and 4 indicate the sample characteristics of SSI participants whom we classify as eligibles, while columns 5 and 6 indicate the characteristics of sample members whom we classify as eligible but who do not appear to take up SSI. All eligibles, participating or not, have characteristics associated with their vulnerable financial state; they are more likely to be female, living alone, minority members, less educated, and substantially healthier than their ineligible counterparts. In comparison with participating eligibles, nonparticipating eligibles are better educated, in better health, and less likely to live alone than participants. As has been found in prior studies, nonparticipating eligibles also face substantially lower (by \$28 in the HRS sample and \$66 in the SIPP) SSI benefits than participants. This inequality has commonly been interpreted as evidence of transaction costs and rational nonparticipation in past work.

IV. Descriptive Information on Eligibility and Participation Spells

It has long been noted that SSI take-up rates are low relative to other income-support programs. We begin this section with a discussion of SSI take-up before proceeding to detailed analyses of eligibility and participation spells. We then directly compare the characteristics of SSI spells with those uncovered by Blank and Ruggles (1996) for the AFDC program.

SSI Take-Up Patterns by Age and Disability History

As noted above, the SSI program is unusual in that it combines an ‘ordinary’ income-support program for the elderly (defined as ages 65 up) with a disability program potentially open to any age group. The limited available evidence (Powers and Neumark, 2005; Elder and Powers, 2004) suggests that the behavior of these two groups may be quite different. Therefore, it is important to understand how many elderly may have ‘aged in’ from the disability program. The lengthy records of the HRS make it possible to explore this issue.

The HRS data suggest that SSI take-up by the aged, already categorized as low relative to other programs, is even lower when one isolates persons participating due to old age. Figures 1a and 1b present participation rates when SSI recipients are characterized according to whether their original entry is through the disability or aged program components. In Figure 1a, the sample consists of people in the HRS whom we observe prior to age 65. The top (blue) line indicates overall participation by age, the green line indicates participants at a given age who are observed to have participated in SSI prior to age 65, and the red line indicates participants at a given age not observed to participate in SSI prior to age 65. It is evident that participation rates for the reason of age are extremely low. The overall decline in SSI-participation among those originally entering as ‘disabled’ presumably represents the high mortality rates these individuals may face.

Figure 1b exploits the availability of an HRS question that asks whether a person has ever applied to a disability program. This allows us to extend the analysis to older members of the HRS sample who are not observed prior to age 65. As before, the top (blue) line indicates overall participation of the elderly in SSI by age. The green line indicates SSI participants who report having applied to a disability program, and the red line indicates SSI recipients who answer this question negatively. Again, it is apparent that participation rates of ‘young’ elderly (e.g., 65-70) for reasons of age are extremely low. Aged participation rates climb steadily with age, but there remains a substantial component of disability-based participation throughout the age distribution.

SSI Eligibility and Participation Spells

Table 3 presents descriptive information on eligibility and participation spells in the HRS and SIPP data sets. There are over 5,161 eligibility spells and 1,824 participation spells in the SIPP. Nearly half of the eligibility spells are left-censored. That is, the individual is already assessed to be eligible in the first period; for that reason, the exact spell length is indeterminate. In contrast, few participation spells are left-censored but many (over half) are right-censored. In these cases, the last period of participation is also the last period that the respondent is in the survey. Again, the total spell length is indeterminate. The third row of the table shows how mean spell length varies across these samples. In the entire sample, the average eligibility spell length is 3.1 waves, or one year, and the average participation spell length is 5.7 waves, or 1.9 years. While average spell length declines as the sample is restricted to spells for which beginnings and endings can be observed, participation spells are always longer than eligibility spells.

The next rows of Table 3 present eligibility and participation spell distributions. First, spell openings are tabulated according to whether it is the first, second, or higher spell observed for the same respondent. This indicates the prevalence of cycling in and out of eligibility and participation statuses in the sample. Note again the differences between eligibility and participation. In the case of participation, a large majority of respondents report but a single spell of participation, while eligibility cycling is more common.

The distribution of spell lengths is presented last. Just under one-half of all eligibility spells last a single period. Long eligibility spells are not uncommon, however; 27.7 percent last from 5 to 9 consecutive waves, or 1.7 to 3.75 years. The fact that long spells are *very* long is reinforced by the fact that most long spells are left-censored. The impact of right and left censoring on sample size in the HRS is even greater. Presumably, this is because of the low frequency collection of data. In the SIPP, there are many short spells occurring away from the endpoints of the data window, but in the HRS there are fewer transitions between participation and eligibility statuses and therefore more opportunities for spells to be coincident with endpoints. Similar qualitative patterns obtain for participation spells, although participation spells are generally much longer than eligibility spells.

As discussed above, Blank and Ruggles (1996) identify four major features of AFDC and Food Stamp spells. We conclude our preliminary discussion of SSI eligibility and participation spells by investigating whether these features also hold for the SSI program and its targeted population.

1. Participation in Eligible Periods

The take-up rate is a basic indicator of welfare program effectiveness. The ratio of the total number of periods in which eligible individuals participate to the total number of periods of

eligibility yields a “period take-up rate” of around 48 percent in the SIPP and 51% in the HRS. Therefore our cross-section take-up figures conform quite closely to the rates reported for the SSI program in McGarry (1996) and Warlick (1982).

Even at this early stage of analysis, however, the issue of the misclassification of eligibility has potentially important implications. Large numbers of sample members report participation, even though they are assessed as ineligible based on their income and assets and our classification rules. In fact, one-quarter of self-reported SSI participants in the SIPP and over one-third (36 percent) of self-reported SSI participants in the HRS are classified as *ineligible*. If it is assumed (as has been done in some previous work) that self-reported SSI participants must be program-eligible, then take-up rates rise to 56 and 62 percent in the SIPP and HRS samples, respectively. Even these take-up rates, however, lie below the basic AFDC take-up rates of around two-thirds for single mothers in Blank and Ruggles (1996). This finding suggests that take-up of the SSI program by the aged is low relative to other targeted groups and programs.

2. Participation and Duration of Eligibility Spells

Blank and Ruggles (1996) note that short eligibility spells are common and often do not result in participation. The fact that the incidence of participation grows with eligibility spell length is offered as evidence of the rational behavior of individuals with regard to welfare participation. This stylized fact holds for our data also, as illustrated in Figures 2a and 2b.

In the SIPP (Figure 2a) the share of eligible months with reported SSI participation is just under 12 percent for spells that last only 1 wave, or 4 months. The participation rate climbs quickly thereafter. In eligibility spells consisting of 3 consecutive waves – a one-year period – the take-up rate is 31.3 percent. At two years’ duration of eligibility, the rate is over 50 percent,

and at three years' duration (the maximum possible duration in the SIPP), the take-up rate is nearly 80 percent.

Findings for the HRS are qualitatively similar (Figure 2b). The shortest possible spell of eligibility (one year) is associated with just a 28 percent participation rate. If eligibility is observed for two consecutive waves (representing a potential eligibility spell of up to 2 years), the participation rate rises above one-half. Spells of 4-6 waves of eligibility (from 6 to 10 years) are all associated with participation rates of 75-80 percent.³ It is clear that the SSI participation rate of the aged in the HRS is also strongly positively correlated with eligibility spell length.

3. Delays in Initiating Take-Up

Blank and Ruggles (1996) demonstrate that although female heads do not appear to be attracted onto AFDC during very short eligibility spells, those who are attracted into the program participate with little delay. They find, for example, that 71 percent of AFDC participation spells begin in the first month of the associated eligibility spell. They also find that if participation does not start near the beginning of the eligibility spell, it is unlikely to be initiated at a later date.

For each eligibility spell, we compute the share of the spell's total duration that has elapsed by the first period of participation. In the HRS, participation begins in the very last period of the eligibility spell in 44 percent of cases, while in the SIPP, this occurs in just 13 percent of cases. Left-censoring is a potential problem here. If eligibility spells are actually ongoing at the initial time of observation, it is possible that participation in the opening spell does not actually represent participation in the first period of eligibility. Another problem is that eligibility spells of length one will necessarily be completed if participation occurs.

³ Note that in contrast with the SIPP, the participation rates for 'longer' durations in the HRS are lower. It is important to bear in mind that since the period of reporting is an entire year for the HRS and the information is only collected every other year, we cannot be assured that all of these long duration eligibility spells are truly continuous.

To address these concerns, we eliminate left-censored eligibility spells and eligibility spells that are only one period long. This reduces sample sizes considerably (from 889 to 144 spells in the HRS and from 1,230 to 161 spells in the SIPP). In the case of the HRS, the proportion of participation beginning in the very last period of the eligibility spell is similar to the unadjusted figure, at 45 percent. In the case of the SIPP, the share of participation beginnings occurring at the very end of the eligibility spell rises to 21 percent. In both cases, little evidence is produced that SSI recipients ‘jump on’ their eligibility status in the timely way that Blank and Ruggles (1996) document for AFDC and Food Stamp recipients.

4. Premature Exit from SSI

Finally, Blank and Ruggles (1996) find, surprisingly, that many AFDC-participating families leave the program well before the apparent conclusion of their eligibility spell. We examine this issue by computing the share of eligibility spells that have not run their course at the time of exit from SSI. Similar to the previous analysis, we calculate how far through the eligibility spell the person is at the time of the participation change. In the HRS, only around 15 percent of eligibility spells have time left ‘on the clock’ when the last period of SSI participation is reported (that is, 85 percent of eligibility spells appear to conclude in the last participation period). In the SIPP, this figure is even smaller, at just 7 percent. This suggests that program exits are timed to the end of eligibility. However, when considering eligibility spells that are not right-censored in the SIPP, the median eligibility spell has about one-quarter of its total duration left to run when the last period of participation is reported. In the HRS, the median spell has about 20 percent of its total length left to run. In this case, it appears that the pattern is qualitatively similar to that reported by Blank and Ruggles (1996), with some additional periods of eligibility typically remaining at the time of program exit.

V. Hazard Model Estimates

We next estimate competing-risk hazard models of the determinants of transitions between three distinct states: participation, nonparticipating ineligibility, and ineligibility. For example, a spell of SSI participation may end because the respondent becomes ineligible or transitions into nonparticipating eligibility. Alternatively, the spell's end may not be observed, in which case it is treated as censored. In all cases, we include as explanatory factors demographic characteristics (sex, race, and age), marital status, marital history and important marital changes (newly widowed), educational attainment (high school graduate), health (a dummy variable indicating that self-reported health is 'poor' or 'fair'), and the expected SSI benefit (as computed from program rules and income and asset information). In this section, we do not consider the problem of classification error. If a person has a calculated expected SSI benefit that is positive and they meet the asset test, then they are classified as program-eligible. Conventional duration specifications did not yield sensible findings (we suspect due to the classification problem). The alternative approach to modeling duration dependence taken in each model is explained below in the discussion of the findings.

Transitions of SSI Ineligibles

Spells of SSI ineligibility can end in participation or in eligibility without participation. The model estimates are presented in Table 4 (the estimates are of probability changes with appropriate standard errors in parentheses beneath). Determinants of transitions into participation (when significant) are overall similar for the HRS and SIPP samples. Ineligible elderly who are currently married, white and have a high school diploma are significantly less likely than others to transition into participation. Those who are Hispanic are significantly more likely to become participants. Some factors' effects differ across the two data sets. The HRS

findings indicate that the very old and those in poor health are more likely to transition into SSI, while in the SIPP these factors are insignificant. The monthly variance of household income is computed in the SIPP and those with greater income variability are more likely to become participants. In both data sets, the value of the expected SSI benefit does not have a significant effect on participation, in contrast to the static findings in McGarry (1996) and Elder and Powers (2006).

Findings for the likelihood of transitions from ineligibility into nonparticipating eligibility are presented in the second and fourth columns of Table 4. Again, overall the factors influencing transitions in the HRS and SIPP are similar. Women, Hispanics, the very old, and those in poor or fair health are more likely to become nonparticipating eligibles. Whites and high school graduates in both data sets are less likely to become nonparticipating eligibles. The most interesting finding is that the expected SSI benefit has a positive influence on nonparticipating eligibility but no influence on participation. This suggests the expected benefit's role in this context is merely as an indicator of low resources (i.e., the 'eligible/ineligible' categorization). There is no evidence of a 'behavioral' effect of benefit generosity in Table 4.

Some findings differ for the two samples. The newly widowed are more likely to transition to nonparticipating eligibility in the HRS, while the effects of present marital status are opposite in the HRS and SIPP. Individuals who have never been married are less likely to become nonparticipating eligibles in the SIPP, and those with more income variation (as computed in the SIPP) are more likely to become eligible without SSI participation.

Finally, duration dependence is modeled by including variables indicating any prior period with nonparticipating eligible status and any prior period with SSI participation status. In

both the HRS and SIPP, persistently low resources, as indicated by past eligibility status, indicate the person is likely to become eligible again and is also more likely to transition into participation. Prior SSI participation also indicates that a person is likely to slip back into a low-resource state (and become eligible for SSI again) and will participate in SSI again.

Transitions of SSI Nonparticipating Eligibles

Table 5 presents estimates that spells of nonparticipating eligibility will end in either participation or ineligibility. In contrast with Table 4, the estimates from the HRS and SIPP samples differ markedly. In the HRS, female sex and being married increase the probability of participation, while holding a high school diploma and a higher expected SSI benefit reduce the participation probability. This last finding is unexpected but not at odds with theory, for two reasons. First, we have not been able to implement state-specific benefits in the HRS as of this writing. Second, the coefficient on the expected SSI benefit in this model measures the marginal effect of the benefit amount on participation, *conditional* on ever entering the state of nonparticipating eligibility. Although the unconditional elasticity is predicted to be positive, no such unambiguous prediction exists for a conditional elasticity. In the SIPP sample, the expected benefit has a positive association with participation. Hispanic race also increases the likelihood of a transition into participation. Being newly widowed or married reduces the probability of participation in the SIPP, while the SIPP also displays some significant differences in behavior by age (older ineligible sample members are less likely to transition into participation than those in the 65-69 age range).

There are few significant factors predicting the transition from eligible to ineligible states. In the HRS, a high school diploma increases the likelihood of ineligibility, while the probability is lower at older ages. This is expected if, as seems reasonable, older individuals are

unlikely to find new sources of income. It is not reflected in the SIPP, however, and the finding for 70-80-year-olds in the two samples conflicts. In the SIPP, newly widowed individuals are much more likely to become ineligible, but this effect is not observed in the HRS.

Finally, duration dependence is modeled by including dummy variables indicating prior SSI-ineligibility, prior SSI participation, and eligibility waves. The latter are decomposed into the total number of waves of eligibility and the total number of waves of eligibility to the current time. ‘Total waves to date’ is the variable intended to capture duration dependence. In both the SIPP and HRS samples, a longer time in nonparticipating eligibility status makes a person much more likely to exit through ineligibility, rather than participation. That is, those SSI-eligibles who do not participate are very unlikely to change their behavior with regard to participation; exits arise entirely through eligibility changes. The number of total waves of eligibility has a small positive effect on participation, but only in the SIPP. In both the HRS and SIPP, however, it has a large negative effect on ineligibility, as one would expect.⁴

Transitions of SSI Participants

Finally, Table 6 presents estimates of the probabilities that SSI participation spells are resolved by changes in eligibility status or by the type of ‘premature’ exit from the program that Blank and Ruggles (1996) note in the case of AFDC. Few variables explain the probability of transitions into ineligibility in either sample. In the HRS, being white increases the probability of exiting through resource increases, while being very old decreases this probability. In the SIPP, those who are married, those who are very old and those in poor or fair health are less likely to exit participation due to ineligibility, while greater household income variance increases

⁴ This positive association should be interpreted cautiously since it is mechanical, e.g., a respondent who is eligible in every wave, and who therefore has a large value of “total waves of eligibility”, will never exit to ineligibility.

the likelihood of this occurrence. A higher expected benefit greatly reduces the probability of exiting participation through ineligibility in the SIPP.

In the HRS, the newly widowed appear to have a higher chance of exiting SSI while they are still program-eligible, while never married and white participants have a significantly lower chance of exiting the program prematurely. The findings for whites in the SIPP are at odds with those in the HRS, while those in poor or fair health are less likely to leave the program while still eligible. In the SIPP, those with high benefits are less likely to leave SSI prior to the end of an eligibility spell.

Again, duration dependence is captured by including variables indicating past participation and eligibility experiences. There is some evidence in the SIPP that if a person has been eligible for SSI in the past, they are likely to be ‘stuck’ in this state – the probability that they exit SSI due to ineligibility is greatly reduced. A history of SSI participation greatly reduces the probability of exiting SSI due to ineligibility in both data sets. This strong finding suggests that people who are the ‘participating type’ do not exit because of concerns over welfare stigma, e.g., but that exits occur chiefly because of eligibility changes.

In the introduction, we noted that if participants are less likely to transition to a state of ineligibility than nonparticipating eligibles, this is evidence consistent with forward-looking behavior. The bottom rows of Tables 5 and 6 provide the relevant statistics for this comparison. The probability of transitions from nonparticipating eligibility to ineligibility far exceeds the probability that participants become ineligible in both the HRS and the SIPP. The relevant rates are 59.4 percent and 23.1 percent in the HRS and 32.8 percent and 6.4 percent in the SIPP.

VI. Empirical Evidence of Measurement Error in Eligibility and Prospective Benefits

Our primary interest is determining the role of the expected duration of SSI eligibility in decisions to enroll in the program. Table 7 presents estimates from probit models of SSI participation decisions as a function of one-period-ahead eligibility status. Because future eligibility status may be correlated with current expected benefit levels, which in turn may influence participation today, we include the current expected benefit, as well as the demographic variables listed in Tables 4-6, as additional controls (these coefficients are not reported in Table 7). The first column of panel A seems to imply that future dynamics play a dramatic role in SSI participation decisions – among those eligible in a given wave of data collection, being eligible in the next wave increases the SSI participation rate by 38 percentage points (the estimates in the table represent marginal effects). Similarly, the first column in panel B shows that next-wave eligibility in the SIPP increases participation by 41 percentage points, conditional on being eligible in the current wave. Both of these effects are sizeable, implying that future eligibility more than doubles the current participation rate, from roughly 30 percent to 70 percent in both data sets. The similarity in magnitude across the two data sets is perhaps surprising, since one wave corresponds to roughly two years of calendar time in the HRS and four months in the SIPP.

Although it is tempting to interpret the estimates in column (1) in Table 7 as confirmation that SSI participation decisions are inherently forward-looking, the estimates in column (2) cast doubt on this interpretation. In particular, note that the association between previous (wave $t-1$) eligibility and participation is of similar magnitude to the relationship between future eligibility and participation in both the HRS and SIPP. Conditional on current participation, there is little

behavioral reason that previous eligibility should affect current participation at all, much less to the same extent as future eligibility.⁵ This pattern suggests that multiple periods of eligibility increase participation rates, but the timing of these periods is largely irrelevant. Columns (3) and (4) confirm this view, indicating that both future and past eligibility substantially increase current participation, even among those who appear to be currently ineligible. In the HRS, the participation rates for those who appear ineligible in both the present and future periods is 1.4 percent, compared to roughly 25 percent among those presently ineligible but eligible in an adjacent wave. The corresponding figures in the SIPP are 1.1 percent and 15 percent, respectively.

The lack of correspondence between the timing of eligibility and participation suggests that much of the time-series cycling between various states may be due to time-varying classification error in the determination of which households are eligible and which are not. At a minimum, the findings suggest that either individuals misreport their participation status, or that at least one fourth of all households who appear transitorily ineligible are not.

Table 8 presents further evidence that transitory changes in eligibility may be illusory. The first two columns present SSI participation rates among the 8776 members of the HRS's AHEAD cohort who have responded to 6 surveys as of 2004.⁶ The top row shows that 1.1% of all respondent-waves indicate SSI participation among those who never appear to be eligible. Among the HRS's 45 observations that correspond to current ineligibility but eligibility in the five other periods, 60 percent involve participation in SSI. Similarly, in the SIPP, nearly half

⁵ To the extent that past eligibility is correlated with future eligibility, it will likely be related to future participation if one does not condition on future eligibility. In unreported models that include all three waves of eligibility, the three point estimates are roughly equivalent.

⁶ The first wave of the data collection for the AHEAD cohort was in 1993, with follow-ups in 1995, 1998, 2000, 2002, and 2004. A preliminary release of the 2006 data has recently become available.

(49.4%) of those who appear to be transitorily ineligible (i.e., eligible in 7 of the 8 waves in which they appeared) participate in SSI. Note that this fraction is larger than the take-up rate among all respondents who are currently eligible but have 6 or fewer total waves of eligibility. Most strikingly, conditional on the total number of waves of eligibility, current eligibility status has only a modest effect on participation rates in both data sets. This is particularly true in the SIPP, where apparent eligibility cycling is presumably less likely to be genuine than in the HRS due to the shorter span of time between each survey wave. Finally, as the results of Table 7 suggest, the total number of waves of eligibility are strongly associated with participation rates, even among those who appear to be currently ineligible.

The patterns of Table 8 suggest that, absent a more accurate measure of eligibility, the study of the determinants of transitions between various states may be severely hampered by measurement error. This caveat is not directly relevant to the work of Blank and Ruggles (1996), who studied transitions among AFDC eligibility and participation states, particularly if researcher determinations of AFDC eligibility are less problematic than for SSI. However, Blank and Ruggles (1996) conclude that many short spells of eligibility do not involve take-up because agents rationally determine that the costs (stigma, informational, or otherwise) of take-up are greater than the benefits associated with short spells of participation. If one ignores measurement error – i.e., if one considered only the estimates in the first column of Table 7 – the same conclusion would seem to apply in the case of SSI. This conclusion would not be warranted, however, as the ability to test these sort of dynamic hypotheses appears to be severely compromised by measurement error.

The notion that measurement error typically affects dynamic estimates more than static ones is well known, but the patterns in Table 8 may also alter the interpretation of static

estimates of take-up rates as presented by McGarry (1996) and other researchers. Past work has established a near-consensus that take-up of SSI is in the range of 0.45 to 0.60. We find overall take-up rates of 0.536 and 0.609 in the balanced HRS and SIPP panels but much higher rates among those persistently eligible – who are the most disadvantaged and presumably the focus of policymakers. For those continuously eligible for eight waves in the SIPP, corresponding to more than two years, 76.2 percent participate in SSI. The analogous figures are even higher in the HRS, possibly because “continuous eligibility” is measured over a longer timeframe.

We present closely-related evidence of the extent of measurement error in Table 9a, which shows participation rates separately for nine discrete categories of expected SSI benefits and by the total number of waves eligible. We focus on a balanced sample of the AHEAD cohort. As also reflected in Table 8, the total number of waves of eligibility strongly influences participation rates. However, in Table 9a we also condition on a respondent’s current monthly benefit level.⁷ Judging from the rightmost “Total” column, participation rises with the expected benefit level for benefits greater than 0. The elasticity of participation with respect to benefit levels has been the focus of previous research such as McGarry (1996), most of which has concluded that benefit levels do positively affect participation. The figures in the table suggest two caveats to this interpretation. First, the apparent positive association is already evident at negative benefit levels. In particular, 15.1% of those with expected benefits between -\$100 and -\$1 participate. This suggests that the proportion of eligible respondents misclassified as ineligible is largest among those who are “marginally ineligible”, in accordance with additive, classical measurement error. Second, the association between benefit levels and participation

⁷ Recall that a respondent is classified as SSI-eligible if expected benefits are positive and meets a resource test, specifying that an individual (couple) must have less than \$2000 (\$3000) in countable assets.

declines after conditioning on the total number of waves of eligibility. This can be seen by contrasting the rise in unconditional participation rates reported in the last column with those in the columns that are stratified by eligibility periods to its left. These patterns exist in the SIPP as well (see Table 9b), possibly implying a smaller role for current-period benefit amounts than found by previous research using cross-sectional data.

Characterizing Measurement Error in the Monthly Expected SSI Benefit

The central role of measurement error in estimates of the determinants of program participation has been the focus of previous research such as Hernandez and Pudney (2007) and Elder and Powers (2006). In contrast to these studies, here we attempt to use the high-frequency structure of the SIPP and the long panels of the HRS to characterize the most critical source of measurement error, that involving the calculation of the expected monthly SSI benefit (S_{it} here and *SSIBEN* in the tables) for each survey respondent. Assume that the true expected SSI benefit follows an AR(1) process with two error components, the first (a_i) being a permanent individual-specific term and the second (ε_{it}) being a time-varying innovation with variance σ^2 :

$$S_{it} = \rho S_{it-1} + a_i + \varepsilon_{it}$$

The researcher does not observe S_{it} but instead calculates a noisy measure of it, using survey respondents' self-reports of income from various sources and applying known SSI program rules, so that

$$S_{it}^* = S_{it} + u_{it},$$

where the error u_{it} is assumed to have zero mean and variance σ_u^2 . If there were no permanent unobserved heterogeneity (i.e., if the variance of a_i is zero), then the model becomes

$S_{it} = \rho S_{it-1} + \varepsilon_{it}$. This structure implies the following form for the variance of the observed expected SSI benefit amount and its first two autocovariances:

$$\begin{aligned} \text{Var}(S_{it}^*) &= \text{Var}(S_{it}) + \text{Var}(u_{it}) = \frac{\sigma^2}{(1-\rho^2)} + \sigma_u^2 \\ \text{Cov}(S_{it}^*, S_{it-1}^*) &= \text{Cov}(S_{it}, S_{it-1}) = \frac{\rho\sigma^2}{(1-\rho^2)} \\ \text{Cov}(S_{it}^*, S_{it-2}^*) &= \text{Cov}(S_{it}, S_{it-2}) = \frac{\rho^2\sigma^2}{(1-\rho^2)} \end{aligned}$$

In this case, the ratio of the first and second autocovariances identifies ρ . The other terms, including σ_u^2 , immediately follow. In the more general case, with a role for permanent unobserved heterogeneity, the identification strategy is analogous but relies on first differences rather than levels. In particular, ρ is given by the following expression:

$$\rho = \frac{\text{Cov}(\Delta S_{it}^*, \Delta S_{it-3}^*)}{\text{Cov}(\Delta S_{it}^*, \Delta S_{it-2}^*)},$$

where Δ is the first-difference operator.

The two procedures imply different estimates of ρ but roughly the same estimates of σ_u^2 . Table 10 presents the intuition behind the identification of the measurement error component. Panel B shows that the autocorrelation in S_{it}^* for the SIPP data is 0.705 at one lag, 0.693 at 3 lags, and 0.658 at 6 lags, corresponding to two years (note that the two-year autocorrelation in the HRS is roughly similar, at 0.630). The fact that the autocorrelation is roughly constant across lags implies a large role for the permanent component, a_i , and a very small value of ρ that is statistically indistinguishable from zero. From here, σ_u^2 is identified, and as is evident from the table, it is roughly 0.3 of the overall variance of S_{it}^* (since the autocovariance drops to 0.7 at very short lags and stays there at longer lags). Moreover, we cannot reject the hypothesis that *all* of the within-person variation in S_{it}^* is due to measurement error in the components of income that are used to create it. This finding raises serious concerns that models of the dynamics of SSI eligibility are capturing little more than observation error.

The remaining cells in the table present correlations between SSIBEN and self-reported SSI benefit amounts (SSI_SR) at various lags. For example, the first-order autocorrelation in self-reported SSI benefit amount is 0.915 in the SIPP, dropping to 0.879 after three waves and 0.866 after six waves (corresponding to two years). SSI_SR is evidently either a less noisy or more persistent series than SSIBEN, but the fact that the two variables are meant to measure the same thing – actual SSI benefits received – suggests that the former explanation is more likely.⁸

VII. Two Eligibility Weighting Schemes

The large role that measurement error plays in dynamic models suggests that it may also be important in static models of take-up. McGarry (1996) and Hernandez and Pudney (2007) focus on this question, using different methods to address the issue. McGarry (1996) assumes that self-reports of actual SSI monthly benefits among recipients are measured without error, so that difference between these benefits received and S_{it}^* is the measurement error itself. The subsample of SSI participants thus provide an estimate of σ_u^2 which is used to create an eligibility probability for all sample members. Specifically, for a respondent with a calculated S_{it}^* , instead of taking (income) eligibility as a binary variable equal to 1 if S_{it}^* is positive and 0 otherwise, the probability that an individual is truly eligible is given by

$$\Pr(S_{it} > 0 \mid S_{it}^*) = \Pr(S_{it}^* > u_{it} \mid S_{it}^*),$$

⁸ The table also shows that the correlation between one wave's value of SSI_SR and SSIBEN from an adjacent wave is 0.169, and this correlation does not vary substantially with the time elapsed between waves. In fact, the value of the correlation is insensitive to whether SSI_SR and SSIBEN are measured in the same wave, as the contemporaneous correlation between the two measures (not reported in the table) is 0.170.

which is calculated assuming normality of u_{it} and the implied variance of u_{it} . One could construct similar weights using longitudinal information by merely using a different estimate of the variance of u_{it} , i.e., that obtained from the previous section.

Figure 3 shows how the two schemes assign income eligibility based on the calculated value of S_{it}^* (*SSIBEN* in the figure). The unweighted model produces a one-unit discontinuity at zero, with the cross-sectional weighting scheme producing the flattest profile and the longitudinal weighting scheme producing an intermediate profile. In practice, the longitudinally weighted profile is not as flat as that produced by cross-section weights because the estimate of σ_u^2 is smaller in the longitudinal method. This may be expected if there is reporting error in the actual benefit received among participants.

The advantage of the weighting methods is that they allow for participating ineligible, those who participate in SSI but who do not appear to be eligible based on (noisy measures of) their income, to be included in the analysis. The disadvantage is that they necessarily result in lower implied eligibility rates among participants if participation is greater at positive values of *SSIBEN* than negative values. Along this dimension, the longitudinal weights appear to be preferable to the cross-sectional weights, as shown in Table 11. In the HRS, absent a correction for measurement error, 70% of all single SSI participants are estimated to be eligible for SSI. This number drops to 65.7% if longitudinal weights are used and 55.8% if the cross-sectional weights are used. This pattern reappears in the SIPP, among both single respondents and couples. Note that across both data sets, the eligibility assessment is much worse for couples than for singles, possibly due to one member of a couple misreporting the earnings of his or her

partner. Eligibility assessment is also more successful in the SIPP than the HRS, which is not surprising considering that income in the HRS is measured yearly rather than monthly.⁹

As a gauge of the practical usefulness of applying either weighting scheme to estimates of transitions among SSI eligibility and participation states, Table 12 presents estimates of weighted versions of the hazard models shown in Tables 4-6. For the sake of brevity, we only report the coefficient associated with one covariate, SSIBEN, in each of these models, but the conclusions are similar when looking at all variables. The two weighting procedures do not substantially affect the estimates. For example, the top row presents the effect of SSIBEN (measured in tens of thousands of dollars) on wave-to-wave transitions from SSI ineligibility to participation. In the unweighted model of Table 6, repeated here in the first column, the point estimate is 0.001 with a standard error of 0.001. Both the estimate and its precision are unchanged when either cross-sectional or longitudinal weights are used.¹⁰

In a more interesting case, increasing the monthly expected benefit amount by \$1000 is estimated to increase transitions from nonparticipating eligibility to participation by 1.32 percentage points in the unweighted case, but this number rises to 1.53 and 5.45 percentage points when using cross-sectional and longitudinal weights, respectively. Our central findings, that transitions into participation from nonparticipating eligibility peak early in eligibility spells, while transition rates into ineligibility rise with the duration of nonparticipating eligibility, are not qualitatively affected by the treatment of measurement error.

⁹ A retrospective monthly income report is likely less error-prone than a retrospective yearly report, but more importantly, SSI eligibility is determined on the basis of last month's income, rather than last year's.

¹⁰ In this case, the weighting procedure involves using the full sample of nonparticipants and weighting each observation by the estimated probability that an individual is ineligible. The corresponding unweighted estimate involves limiting the sample to those who appear to be ineligible based on program rules.

VIII. Conclusions

This paper has presented evidence on the characteristics of eligibility and participation spells of the aged with regard to the SSI program. We find that static take up rates in SSI are low, but that longer-term eligibles have much higher take-up rates. The ability to track respondents over time is particularly valuable in the case of SSI, as the program may be entered through either its disability or aged component. In fact, when we examine participation rates according to entry mode, we find that take-up rates of the aged do in fact appear fairly low, especially among the “young elderly” aged 65 to 70. Thus, while long-term take-up rates are fairly high, a large share of use, even at fairly advanced age ranges, cannot be attributed to the aged program. Future work should attempt to integrate the two components of the program.

As noted at the outset of this paper, the SSI program is failing in a fundamental respect if people in deep and persistent poverty do not enroll. Our longitudinal evidence is that take-up rates for the long-term eligible are around 80 percent. This constitutes convincing evidence from two large household data sets that the SSI take-up rate is reasonably high for the persistently eligible. Unfortunately, such a conclusion is premature, as the evidence presented above on the extent and nature of eligibility classification error implies that we cannot determine whether the take-up rate for longer-term eligibles is higher because their eligibility categorization is more accurately measured, because persistent eligibility poses more ‘chances’ to enter SSI, or because prospective recipients are forward-looking and there are entry costs to beginning participation. If the higher take-up of longer-term eligibles is explained in large part by measurement problems, however, it is possible that cross-sectional take-up rates dramatically understate the effectiveness of the program.

While we have documented the extent of measurement error, we have not proposed corrections that substantially alter the estimates of competing risk hazards of entry and exits from SSI. Credible methods to account for classification error, possibly including those developed recently in the program participation literature, should be the top priority in ongoing research, as classification error is the dominant empirical barrier to obtaining consensus on the determinants and extent of SSI take-up. Future work will likely assess the impact of new methods on the substantive findings of both static and dynamic studies of SSI participation.

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Table 1: Features of the SIPP and HRS Samples

	SIPP	HRS
Reference period	4 months	1 year
Interview frequency	every 4 months	every other year
Length	2-3 years	12 years
Individuals represented	29,418	24,161
Eligibility periods	15,903	4,058
Participation periods	10,319	3,248
Eligibility spells	5,161	2,539
Participation spells	1,824	1,520

Source: Authors' tabulations from the HRS and SIPP.

Table 2: Characteristics of the Aged in the HRS and SIPP

	<i>All Aged</i>		<i>SSI-eligible participants</i>		<i>SSI-eligible nonparticipants</i>	
	HRS	SIPP	HRS	SIPP	HRS	SIPP
Female	0.550 (0.490)	0.593 (0.491)	0.774 (0.418)	0.763 (0.425)	0.668 (0.471)	0.704 (0.457)
Divorced	0.071 (0.257)	0.148 (0.355)	0.106 (0.307)
Widowed	0.309 (0.462)	0.515 (0.500)	0.474 (0.499)
Married	0.567 (0.495)	0.558 (0.497)	0.184 (0.388)	0.237 (0.425)	0.334 (0.472)	0.374 (0.484)
Lives Alone	0.290 (0.454)	0.315 (0.465)	0.473 (0.499)	0.647 (0.478)	0.386 (0.487)	0.609 (0.488)
Ever Died	0.325 (0.468)	0.358 (0.480)	0.361 (0.480)
Hispanic	0.074 (0.262)	0.047 (0.212)	0.341 (0.474)	0.195 (0.396)	0.219 (0.414)	0.073 (0.261)
Caucasian	0.819 (0.385)	0.890 (0.312)	0.530 (0.499)	0.625 (0.484)	0.566 (0.495)	0.834 (0.372)
Less Than HS	0.305 (0.460)	0.430 (0.495)	0.872 (0.335)	0.819 (0.385)	0.748 (0.434)	0.596 (0.491)
College Graduate	0.143 (0.350)	0.247 (0.431)	0.016 (0.126)	0.050 (0.217)	0.026 (0.160)	0.148 (0.355)
Age	75.270 (7.339)	73.276 (5.855)	77.502 (8.228)	74.303 (6.120)	76.359 (8.644)	74.419 (6.265)
Self-reported Health	3.024 (1.152)	3.157 (1.119)	3.812 (1.044)	3.899 (1.002)	3.557 (1.136)	3.501 (1.066)
Eligible for SSI	0.070 (0.255)	0.079 (0.270)	1.000 ...	1.000 ...	1.000 ...	1.000 ...
SSI recipient	0.054 (0.226)	0.051 (0.221)	1.000 ...	1.000 ...	0.000 ...	0.000 ...
SSI Benefit (Imputed)	-2218.969 (4514.968)	-1340.726 (1577.512)	249.221 (180.681)	251.0391 (216.449)	221.313 (202.756)	184.9403 (242.490)
Sample Size (Person-Waves)	21125	201,053	2102	7706	2088	8197

Table 3: Eligibility and Participation Spells in the HRS and SIPP

Panel A: SIPP

	SSI-aged Eligibility spells			SSI-aged Participation spells		
	All	Non-left Censored	Non-left & Right Censored	All	Non-left Censored	Non-left & Right Censored
Number	5,161	2,969	2,459	1,824	1,716	797
percent	1	0.575276109	0.476458051	1	0.940789	0.436952
Mean length	3.08138	1.933311	2.126881	5.657346	2.907821	3.307432
Standard deviation	2.585208	1.579731	1.671862	2.693814	2.128872	2.135276
Number of spells distribution						
1	80.8	66.62	69.42	96.16	80.45	81.08
2	16.88	29.34	27.78	3.78	19.27	18.92
3	2.25	3.91	2.77	0.05	0.28	0
4	0.08	0.13	0.04			
Spell length distribution						
1	45.63	61.57	53.6	13.43	39.94	27.36
2	14.18	16.94	20.49	7.24	15.92	19.26
3	7.34	7.17	8.66	6.14	12.01	14.53
4	5.15	4.72	5.69	5.15	6.7	8.11
5	4.71	3.97	4.8	5.15	6.98	0.45
6	6.2	2.59	3.13	12.94	8.94	10.81
7	5.62	2.19	2.64	12.72	8.38	10.14
8	9.03	0.84	1.02	28.67	1.12	1.35
9	2.13	0	0	8.55	0	0

Table 3: Eligibility and Participation Spells in the HRS and SIPP (continued)

	<i>Panel B: HRS</i>					
	SSI-aged Eligibility spells			SSI-aged Participation spells		
	All	Non-left Censored	Non-left & Right Censored	All	Non-left Censored	Non-left & Right Censored
Number	2,539	1,049	629	1,520	484	309
percent	1	0.413154785	0.247735329	0.598661	0.190626	0.121701
Mean length	1.690429	1.332698	1.554849	2.140132	1.535124	1.838188
standard error	1.187782	0.7354754	0.8827412	1.41122	0.908213	1.01915
Number of spells distribution						
1	88.97	73.31	75.52	90.72	70.87	75.4
2	10.48	25.36	24.17	9.28	29.13	24.6
3	0.55	1.33	0.32	0	0	0
4						
Spell length distribution						
	65.22	78.36	63.91	46.84	66.12	46.93
1	17.13	13.82	23.05	22.7	21.07	33.01
2	7.56	4.48	7.47	12.04	8.26	12.94
3	5.87	2.86	4.77	10.72	2.27	3.56
4	1.97	0.48	0.79	3.42	2.27	3.56
5	2.17	0	0	0	0	0
6	0.08	0	0	0	0	0

Table 4: Hazard Model Estimates: Determinants of Transitions out of SSI-Ineligibility

	HRS		SIPP	
	<i>Transitions Into:</i>		<i>Transitions Into:</i>	
	Participation	Nonparticipating Eligibility	Participation	Nonparticipating Eligibility
Female	0.001 (0.001)	0.005 (0.001)	0.000 (0.000)	0.009 (0.001)
Newly widowed	0.003 (0.002)	0.007 (0.004)	-0.003 (0.001)	0.010 (0.010)
Married	-0.005 (0.002)	-0.010 (0.003)	-0.002 (0.001)	0.008 (0.002)
Never Married	0.004 (0.005)	0.003 (0.007)	0.001 (0.001)	-0.004 (0.002)
White	-0.009 (0.002)	-0.024 (0.003)	-0.002 (0.001)	-0.017 (0.002)
Hispanic	0.019 (0.004)	0.016 (0.005)	0.003 (0.001)	0.014 (0.003)
HS Graduate	-0.004 (0.001)	-0.014 (0.002)	-0.001 (0.000)	-0.009 (0.001)
70<=Age<80	0.001 (0.001)	-0.003 (0.002)	0.000 (0.000)	-0.001 (0.001)
Age>80	0.002 (0.001)	0.008 (0.002)	0.000 (0.000)	0.003 (0.001)
Health Poor or Fair	0.002 (0.001)	0.007 (0.002)	0.000 (0.000)	0.004 (0.001)
HHINC VAR (in \$10000)	0.004 (0.001)	0.013 (0.004)
SSIBEN (in \$10000)	0.001 (0.001)	0.004 (0.001)	0.001 (0.001)	0.039 (0.002)
Previous Non- Participating Eligibility	0.031 (0.009)	0.104 (0.015)	0.004 (0.002)	0.234 (0.011)
Previous SSI Participation	0.242 (0.029)	0.062 (0.020)	0.118 (0.025)	0.058 (0.021)
Sample Size (Person- Waves)	29,324	29,324	129,000	129,000
Sample Mean of Destination	0.007	0.016	0.001	0.015

Table 5: Hazard Model Estimates: Determinants of Transitions out of Nonparticipating Eligibility

	HRS		SIPP	
	<i>Transitions Into:</i>		<i>Transitions Into:</i>	
	Participation	Ineligibility	Participation	Ineligibility
Female	0.058 (0.025)	-0.029 (0.026)	0.008 (0.006)	-0.019 (0.013)
Newly widowed	0.032 (0.057)	0.018 (0.045)	-0.021 (0.006)	0.229 (0.034)
Married	0.080 (0.030)	-0.023 (0.031)	-0.018 (0.008)	-0.015 (0.020)
Never Married	0.020 (0.056)	0.058 (0.052)	0.013 (0.011)	-0.018 (0.021)
White	-0.029 (0.021)	-0.019 (0.022)	0.004 (0.005)	0.004 (0.011)
Hispanic	0.000 (0.029)	0.039 (0.027)	0.046 (0.011)	0.008 (0.017)
HS Graduate	-0.041 (0.019)	0.052 (0.023)	0.000 (0.003)	0.007 (0.010)
70<=Age<80	0.042 (0.027)	-0.065 (0.026)	-0.012 (0.005)	0.033 (0.011)
Age>80	0.013 (0.026)	-0.075 (0.027)	-0.013 (0.005)	0.019 (0.013)
Health Poor or Fair	0.000 (0.020)	-0.018 (0.021)	0.004 (0.003)	-0.006 (0.009)
SSIBEN (in \$10000)	-0.117 (0.049)	0.197 (0.517)	0.132 (0.070)	-0.004 (0.176)
Total Waves of Eligibility	0.036 (0.013)	-0.363 (0.016)	0.003 (0.001)	-0.156 (0.003)
Total Waves of Eligibility Thus Far	-0.010 (0.018)	0.284 (0.022)	-0.002 (0.001)	0.055 (0.004)
Previous Ineligibility	0.004 (0.033)	0.053 (0.031)	-0.007 (0.005)	0.003 (0.014)
Previous SSI Participation	0.354 (0.050)	-0.044 (0.037)	0.423 (0.054)	0.043 (0.043)
Sample Size (Person- Waves)	912	912	5764	5764
Sample Mean of Destination	0.126	0.594	0.020	0.328

Table 6: Hazard Model Estimates: Determinants of Transitions out of SSI Participation

	HRS		SIPP	
	<i>Transitions Into:</i>		<i>Transitions Into:</i>	
	Ineligibility	Nonparticipating Eligibility	Ineligibility	Nonparticipating Eligibility
Female	0.003 (0.035)	-0.006 (0.027)	-0.012 (0.011)	-0.009 (0.005)
Newly widowed	0.066 (0.076)	0.114 (0.068)	0.060 (0.114)	-0.009 (0.005)
Married	0.080 (0.045)	0.011 (0.032)	-0.069 (0.018)	-0.002 (0.007)
Never Married	-0.006 (0.047)	-0.052 (0.027)	-0.009 (0.012)	-0.008 (0.005)
White	0.060 (0.030)	-0.061 (0.022)	0.007 (0.007)	0.008 (0.003)
Hispanic	-0.054 (0.032)	0.033 (0.022)	-0.014 (0.009)	-0.005 (0.004)
HS Graduate	0.003 (0.044)	-0.002 (0.028)	-0.008 (0.009)	0.005 (0.005)
70<=Age<80	-0.067 (0.037)	-0.020 (0.026)	0.004 (0.008)	0.001 (0.004)
Age>80	-0.099 (0.036)	-0.017 (0.026)	-0.011 (0.009)	0.002 (0.004)
Health Poor or Fair	0.010 (0.028)	0.003 (0.019)	-0.010 (0.007)	-0.013 (0.004)
HHINC VAR (in \$10000)	3.689 (0.424)	0.341 (0.132)
SSIBEN (in \$10000)	-0.969 (0.772)	0.165 (0.554)	-1.357 (0.164)	-0.180 (0.081)
Previous Non- Participating Eligibility	-0.144 (0.084)	0.014 (0.048)	-0.172 (0.088)	0.002 (0.049)
Previous SSI Participation	-0.242 (0.067)	0.026 (0.036)	-0.197 (0.083)	-0.040 (0.044)
Sample Size (Person- Waves)	1029	1029	5553	5553
Sample Mean of Destination	0.231	0.099	0.064	0.013

Table 7: The Effect of Future SSI Eligibility on Current Participation Rates, HRS and SIPP

Panel A: Estimates of Effects of Period t+1 or t-1 Eligibility on Period t Participation, HRS

	(1)	(2)	(3)	(4)
<i>t+1</i> eligibility	0.380 (0.018)	...	0.216 (0.004)	...
<i>t-1</i> eligibility	...	0.354 (0.017)	...	0.220 (0.012)
Eligible in Year t?	Yes	Yes	No	No
R ²	0.139	0.1162	0.058	0.071
N	3,177	3,177	45,476	45,476

Panel B: Estimates of Effects of Period t+1 or t-1 Eligibility on Period t Participation, SIPP

	(1)	(2)	(3)	(4)
<i>t+1</i> eligibility	0.410 (0.010)	...	0.135 (0.007)	...
<i>t-1</i> eligibility	...	0.425 (0.010)	...	0.143 (0.008)
Eligible in Year t?	Yes	Yes	No	No
R ²	0.108	0.122	0.042	0.042
N	13,711	13,711	157,294	157,294

Notes: Coefficients (with standard errors in parentheses) reported are marginal effects from probit models of SSI participation as a function of eligibility in either a future or past period. Standard errors account for clustering at the individual level. A period corresponds to two years in the HRS and 4 months in the SIPP.

Table 8: SSI Participation Rates by Current Eligibility and Total Waves of Eligibility in the HRS and SIPP

Total Waves of Eligibility	<i>HRS (AHEAD Cohort)</i>		<i>SIPP</i>	
	Currently Ineligible	Currently Eligible	Currently Ineligible	Currently Eligible
0	0.011 7048	... 0	0.017 23760	... 0
1	0.074 610	0.124 129	0.012 672	0.031 96
2	0.129 116	0.267 60	0.090 222	0.108 74
3	0.250 64	0.290 69	0.168 125	0.173 75
4	0.469 49	0.638 105	0.170 112	0.304 112
5	0.600 45	0.823 231	0.156 96	0.231 160
6	... 0	0.772 250	0.216 74	0.216 222
7			0.494 79	0.515 553
8			... 0	0.762 2352
	0.023 7932	0.536 844	0.022 25140	0.609 3644

Notes: For each combination of current eligibility status and total waves eligible, the numbers reported are the fraction currently receiving SSI and the number of sample respondents who meet the criteria.

Table 9a: SSI Participation Rates by Number of Waves Eligible and Current-Period Expected Benefit Amounts, HRS (AHEAD cohort)

<i>Expected Benefits</i>	<i>Total Number of Waves Eligible</i>							<i>Total</i>
	0	1	2	3	4	5	6	
<-750	0.007 2875	0.023 94	0.000 6	0.000 2	0.333 3	1.000 1	. 0	0.010 2981
-750 to -501	0.008 1060	0.017 60	0.000 13	0.667 3	0.000 1	0.750 4	. 0	0.012 1141
-500 to -301	0.006 988	0.038 79	0.154 13	0.200 5	0.000 2	0.333 3	. 0	0.012 1090
-300 to -101	0.028 958	0.067 179	0.094 32	0.133 15	0.500 8	0.667 12	. 0	0.047 1204
-100 to -1	0.076 290	0.170 135	0.189 37	0.222 27	0.526 19	0.545 22	. 0	0.151 530
0 to 99	0.019 54	0.089 101	0.086 35	0.286 35	0.522 46	0.677 65	0.661 56	0.327 392
100 to 199	0.050 20	0.167 24	0.300 10	0.286 14	0.778 36	0.818 44	0.806 62	0.600 210
200 to 399	0.000 28	0.129 31	0.222 18	0.353 17	0.500 26	0.875 64	0.869 61	0.555 245
> 400	0.000 15	0.091 22	0.583 12	0.333 15	0.769 13	0.918 61	0.746 71	0.636 209
Total	0.013 6288	0.083 725	0.176 176	0.271 133	0.584 154	0.786 276	0.772 250	0.088 8002

Note: Entries include the participation rate for each combination of benefit range and total years of eligibility. Below these numbers are the total AHEAD sample members in each category. The sample is restricted to those who appeared in all 6 waves of the AHEAD.

Table 9b: SSI Participation Rates by Number of Waves Eligible and Current-Period Expected Benefit Amounts, SIPP

<i>Expected Benefits</i>	<i>Total Number of Waves Eligible</i>									Total	
	0	1	2	3	4	5	6	7	8		
<-750	0.001 10045	0.000 92	0.000 16	0.000 14	0.000 9	0.333 6	0.307 13	0.000 3	.	0	0.001 10198
-750 to -501	0.006 4060	0.097 72	0.048 21	0.125 16	0.200 10	0.000 6	0.600 5	0.167 6	.	0	0.010 4196
-500 to -301	0.002 4303	0.011 182	0.018 53	0.000 18	0.043 23	0.333 12	0.235 17	0.600 5	.	0	0.005 4613
-300 to -101	0.002 5252	0.012 329	0.097 113	0.242 66	0.093 43	0.156 32	0.158 19	0.522 23	.	0	0.011 5877
-100 to -1	0.009 2115	0.031 319	0.119 134	0.169 95	0.216 88	0.186 70	0.315 73	0.500 56	.	0	0.048 2950
0 to 99	0.048 641	0.100 90	0.079 76	0.272 92	0.257 109	0.214 131	0.336 235	0.519 364	0.678 776		0.366 2514
100 to 199	0.112 385	0.030 33	0.152 33	0.081 37	0.104 48	0.372 43	0.368 85	0.438 146	0.684 680		0.425 1490
200 to 399	0.103 242	0.040 25	0.100 20	0.138 29	0.105 19	0.302 43	0.466 73	0.524 145	0.766 671		0.530 1267

> 400	0.106 94	0.000 8	0.000 3	0.000 3	0.807 26	0.000 3	0.188 16	0.596 52	0.943 558	0.775 763
Total	0.006 27137	0.030 1150	0.096 469	0.178 370	0.219 375	0.234 346	0.343 536	0.505 800	0.756 2685	0.092 33868

Note: Entries include the participation rate for each combination of benefit range and total years of eligibility. Below these numbers are the total SIPP sample members in each category. The sample is restricted to those who participated in 8 SIPP waves.

Table 10: Sample Correlations of Imputed and Self-Reported SSI Benefit Amounts in HRS and SIPP

<i>Panel A: HRS</i>						
	SSIBEN _{t-1}	SSIBEN _{t-2}	SSIBEN _{t-3}	SSI_SR _{t-1}	SSI_SR _{t-2}	SSI_SR _{t-3}
SSIBEN _t	0.630	0.532	0.462	0.190	0.174	0.167
SSI_SR _t	0.190	0.174	0.167	0.682	0.488	0.441

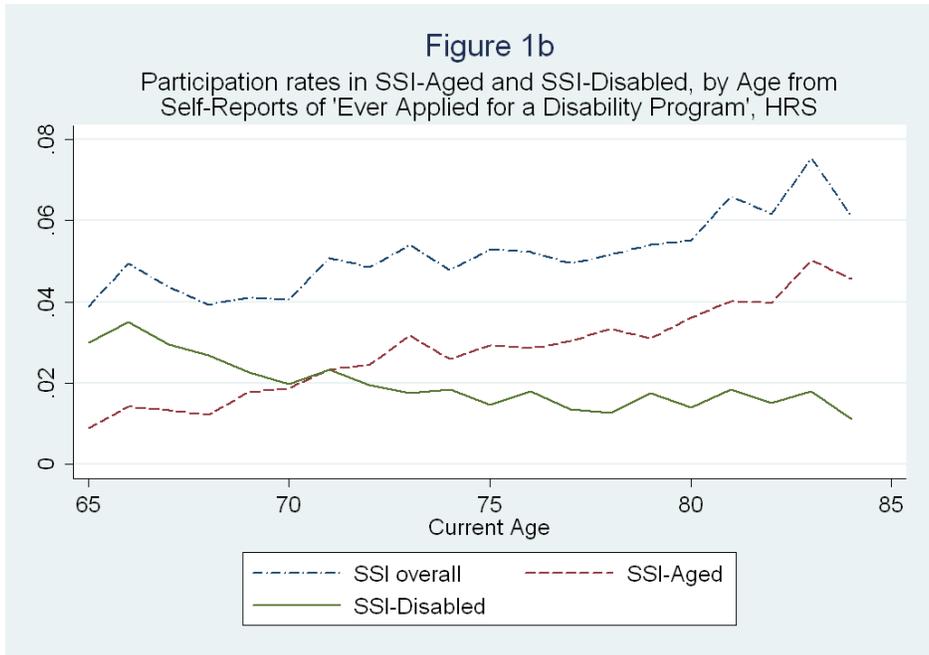
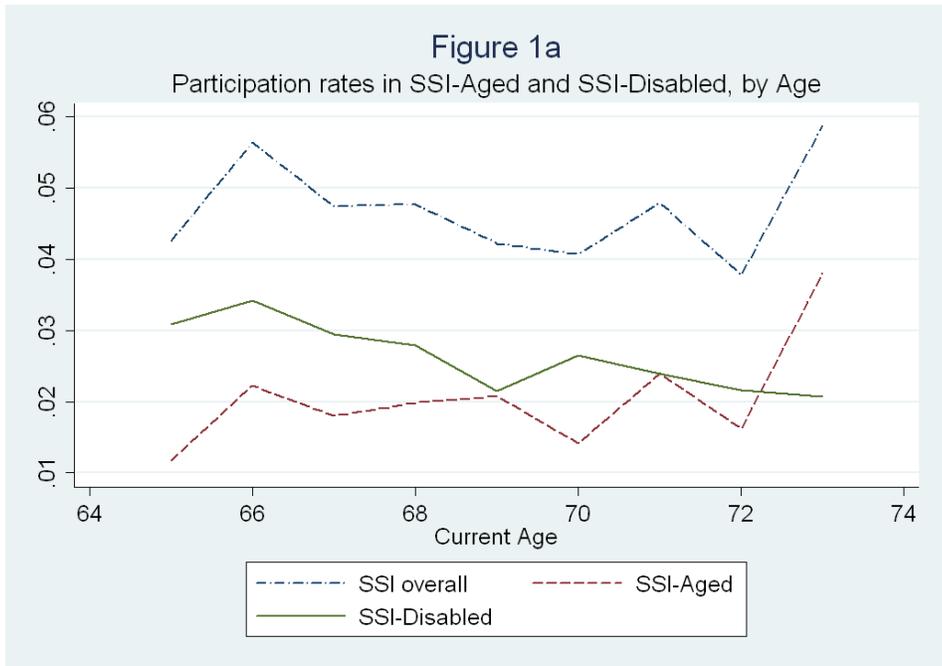
<i>Panel B: SIPP</i>						
	SSIBEN _{t-1}	SSIBEN _{t-3}	SSIBEN _{t-6}	SSI_SR _{t-1}	SSI_SR _{t-3}	SSI_SR _{t-6}
SSIBEN _t	0.705	0.693	0.658	0.169	0.169	0.172
SSI_SR _t	0.169	0.169	0.172	0.915	0.879	0.866

Table 11: Predicted Eligibility Rates Among SSI Participants in HRS and SIPP

	HRS		SIPP	
	Singles	Couples	Singles	Couples
Share Eligible (unweighted)	0.700	0.459	0.879	0.548
Share Eligible (Cross-Section Weights)	0.558	0.456	0.581	0.492
Share Eligible (Longitudinal Weights)	0.657	0.456	0.714	0.523

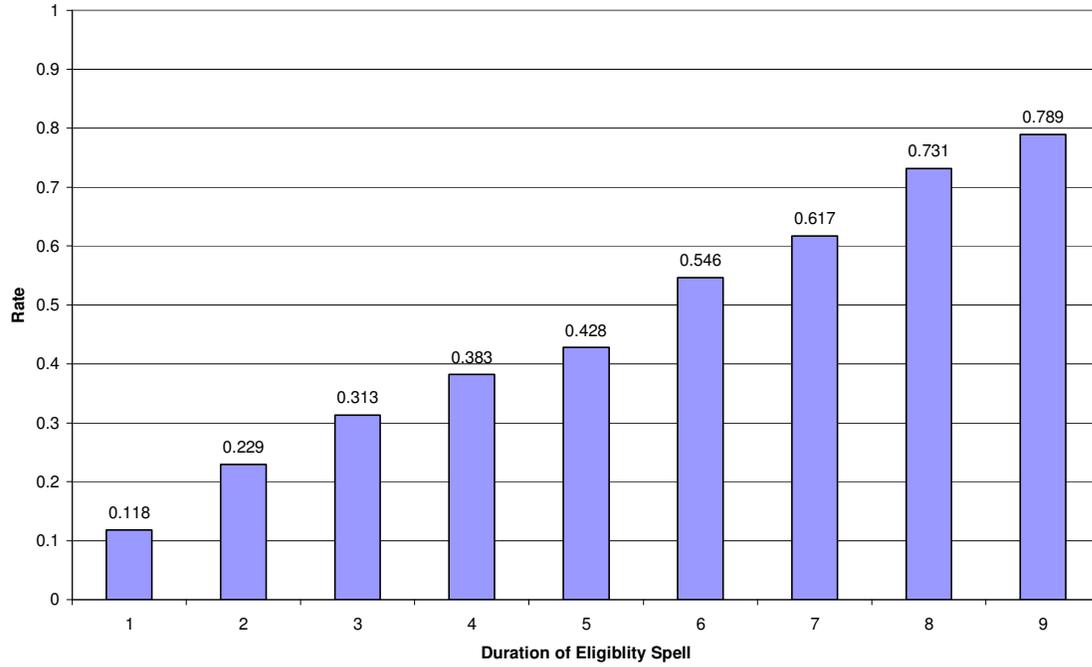
Table 12: Sensitivity of Hazard Model Estimates to Corrections for Measurement Error, SIPP

	<i>Coefficient on SSIBEN</i>		
	Unweighted	Cross-Sectional Weights	Longitudinal Weights
Transitions from Ineligibility to:			
Participation	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)
Nonparticipating Eligibility	0.039 (0.002)	0.055 (0.003)	0.048 (0.002)
Transitions from Nonparticipating Eligibility to:			
Participation	0.132 (0.070)	0.153 (0.060)	0.545 (0.200)
Ineligibility	-0.004 (0.176)	-0.099 (0.019)	-0.156 (0.059)
Transitions from Participation to:			
Ineligibility	-1.357 (0.164)	-4.737 (0.246)	-3.590 (0.274)
Nonparticipating Eligibility	-0.180 (0.081)	0.020 (0.051)	-0.072 (0.065)



Figures 2a (top) and 2b (bottom)

Participation Rate by Eligibility Spell Length, SIPP Sample



Participation Rate by Duration of Eligibility Spell, HRS

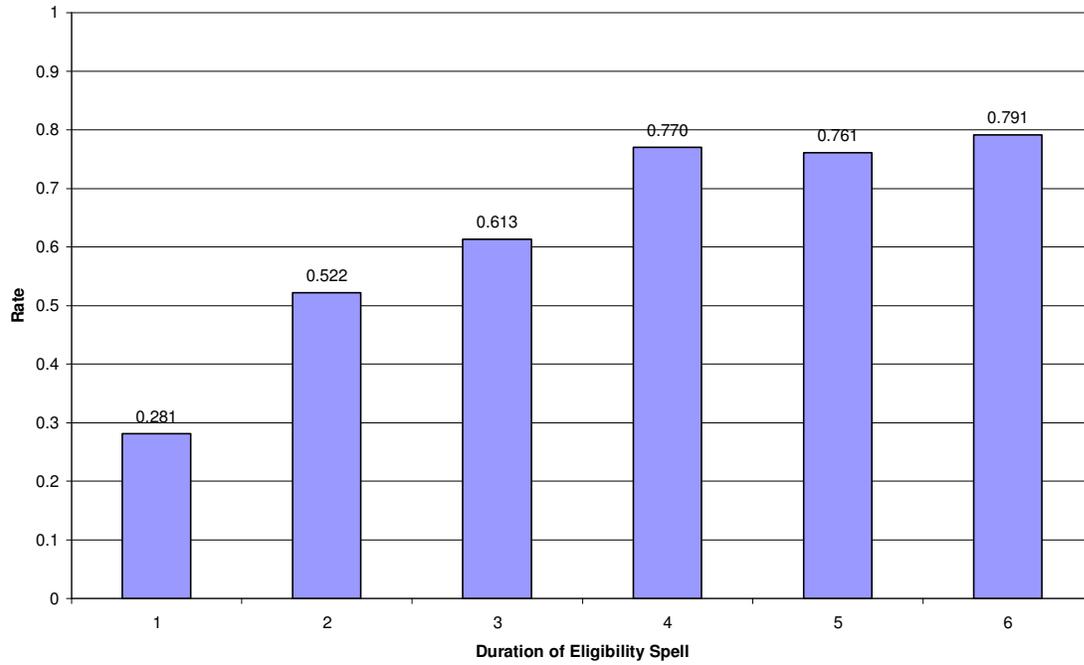


Figure 3

Eligibility Weights and SSI Participation Rates
by Value of SSIBEN, SIPP

