Modeling SSI Financial Eligibility and Simulating the Effect of Policy Options

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ERRATA

This article originally used frequency weights rather than normalized sampling weights in estimating the Supplemental Security Income participation model. As a result, the standard errors reported in Table 7 (pages 30–31) were calculated based on population counts rather than sample counts and were thus substantially underestimated. Many of the coefficients are, in fact, statistically significant, although at lower levels of confidence in some cases; others are not significant at conventional levels. The coefficient estimates and their associated marginal effects were correctly reported in Table 7. The errors have been corrected in the electronic versions of the article.

Modeling SSI Financial Eligibility and Simulating the Effect of Policy Options

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This article presents the Supplemental Security Income (SSI) Financial Eligibility Model developed in the Division of Policy Evaluation of the Office of Research, Evaluation, and Statistics. Focusing on the elderly, the article simulates five potential changes to the SSI eligibility criteria and presents the effects of those simulations on SSI participation, federal benefits, and poverty among the elderly. Finally, the article discusses future directions for research and potential improvements to the model.

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Summary

This article simulates eligibility for Supplemental Security Income (SSI) among the elderly, analyzes factors affecting participation, and looks at the potential effects of various options to modify financial eligibility standards for the federal SSI program.

We find that in the estimated noninstitutional elderly population of 30.2 million in the United States in 1991, approximately 2 million individuals aged 65 or older were eligible for SSI (a 6.6 percent rate of eligibility). Our overall estimate of the rate of participation among eligible elderly is approximately 63 percent, suggesting that more than a third of those who are eligible do not participate in the program. The results of our analysis of factors affecting participation among the eligible elderly show that a number of demographic and socioeconomic variables are associated with the probability of participation.

We also simulate the effects of various policy options on the poverty rate, poverty gap, annual program cost, the number of participants, and the average estimated benefits among participants. The simulations consider the potential effects of five policy alternatives:

- Increase the general income exclusion (GIE) from $20 to $80.
- Increase the earned income exclusion (EIE) from $65 to $260.
- Increase the federal benefit rate (FBR) by $50 for individuals and $75 for couples and eliminate the GIE.
- Increase the asset threshold to $3,000 for individuals and $4,500 for couples.
- Increase the asset threshold to $6,000 for individuals and $9,000 for couples.

Using 1991 microdata from the Survey of Income and Program Participation (SIPP) matched to Social Security Administration administrative records and making adjustments reflecting aggregate program statistics, we present the results of our simulations for December 1999. The results show substantial variation in the simulated effects of the five policy alternatives along the various outcome dimensions considered. The simulated effects on the poverty gap of the elderly population range from a 7.9 percent reduction ("Increase the GIE

from $20 to $80") to a 0.1 percent reduction ("Increase the EIE from $65 to $260"). All simulated interventions are expected to increase the rate of SSI participation among the elderly from a high of 20.3 percent ("Increase the GIE from $20 to $80") to a low of 0.5 percent ("Increase the EIE from $65 to $260").

We also find that the interventions that have greater estimated effects in terms of increased participation and reduced poverty tend to cost more. At the high end, we estimate that increasing the GIE from $20 to $80 could raise annual federal SSI cash benefit outlays by about 46 percent, compared with only 0.9 percent for increasing the EIE from $65 to $260. Similar to the EIE intervention, raising the resource thresholds by 50 percent would reduce the overall poverty gap of the elderly by only 0.2 percent, would increase SSI participation only modestly (by 1.3 percent), but would entail slightly higher program costs (by 1.4 percent). Increasing the asset threshold by 200 percent would have higher estimated effects on all three outcomes, but it would still be associated with relatively low increases in both costs and benefits. Finally, the simulated effects on the three key outcomes of increasing the FBR by $50 for individuals and $75 for couples, combined with eliminating the GIE, are relatively large but are clearly less substantial than increasing the GIE from $20 to $80.

This work relies on data from the SIPP matched to administrative data on federal SSI benefits that provide a more accurate picture of SSI participation than has been feasible for previous studies. We simulate eligibility for federal SSI benefits by applying the program rules to detailed information on the characteristics of individuals and couples based on the rich array of demographic and socioeconomic data in the SIPP, particularly the comprehensive information SIPP provides on assets and monthly income. A probit model is estimated to analyze factors affecting participation among the eligible elderly. Finally, we conduct the policy simulations using altered program rules represented by the policy alternatives and predicted participation probabilities to estimate outcomes under simulated program rules. We compare those simulated outcomes to observed outcomes under current program rules. The results of our simulations are conditional on the characteristics of participants and eligibles in 1991, but they also reflect aggregate adjustments capturing substantial changes in overall participation and program benefit levels between 1991 and 1999.

Introduction

The Supplemental Security Income (SSI) program serves as an income source of last resort for individuals who are elderly or severely disabled. SSI eligibility is restricted to people with limited resources, and the benefit amount is reduced as the recipient's countable income rises. Chart 1 provides a simplified description of the rules for SSI eligibility and benefit receipt.[1] Relaxing the financial eligibility standards for SSI could have distinct separate effects: current beneficiaries might receive higher incomes, previously ineligible individuals might become eligible for the program, and eligible nonparticipants might be induced to enroll in SSI. We explore these effects by developing models of eligibility and participation for the federal SSI program. Our ultimate goal is to simulate the effects that modifying the SSI criteria for income and resource eligibility would have on program costs and on the financial status of beneficiaries.[2]

People under age 65 must be found disabled before they may receive SSI benefits. To separate our discussion of financial eligibility from the issue of categorical eligibility, we focus on people aged 65 or older. Our model of financial eligibility applies to both elderly and disabled individuals, but our current participation model is estimated only for the elderly.

Although restricting our attention to the elderly population simplifies our work, we still face a number of specific challenges:

- What is the appropriate data source for estimating SSI eligibility and participation?
- What is the appropriate unit of analysis?
- How should we measure program participation?
- How can we predict program participation under simulated program rules?
- What are the relevant outcomes to focus on in assessing the effects of proposed policy changes?
- How can we make simulation results based on historical data useful to policymakers today?

In addressing these challenges, we describe our methodology and present the results of illustrative SSI policy simulations.

Previous Studies

Several previous studies have developed models of SSI eligibility and participation. We consider those studies in terms of the data used, the focus (for example, questions addressed, populations of interest), and the methodology.

Virtually all existing studies of SSI eligibility and participation use publicly available survey data. Popular choices include the Survey of Income and Program Participation (Sheils and others 1990; Wixon and Vaughan 1991; Vaughan and Wixon 1991; McGarry 1996), the Current Population Survey (Warlick 1982; Sheils and others 1990), the Panel Study of Income Dynamics (Coe 1985; Hill 1990), and more recently, the study of Assets

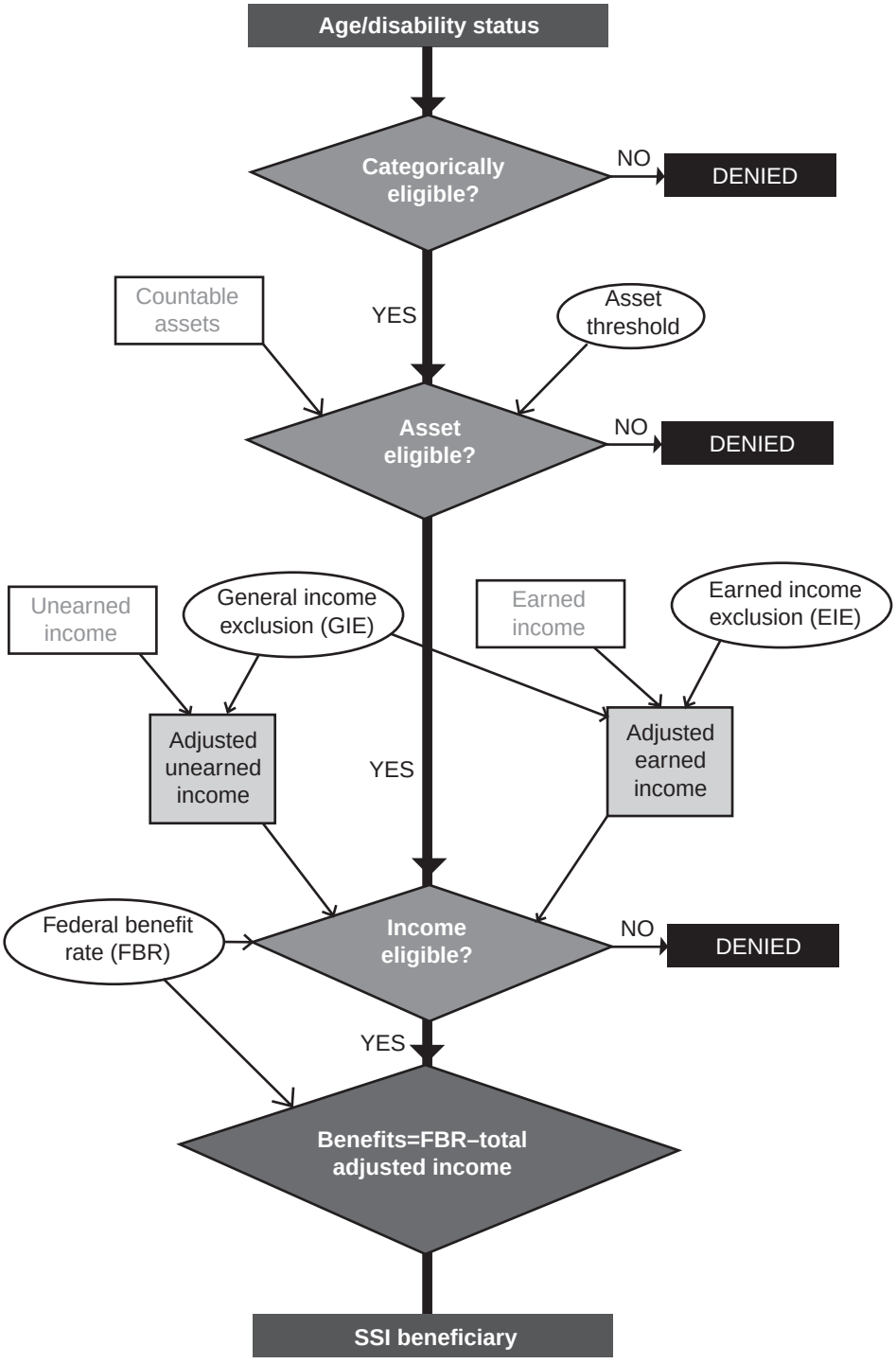
and Health Dynamics Among the Oldest Old (Davies forthcoming; McGarry 2000). Three previous studies used survey data collected by the Social Security Administration (SSA). Choi (1998) uses SSA's New Beneficiary Survey and New Beneficiary Follow-up; Menefee, Edwards, and Schieber (1981) use 1973 and 1974 data from SSA's Survey of Low-Income Aged and Disabled. Drazga, Upp, and Reno (1982) use data on 2,000 low-income elderly individuals collected through a 1977 survey sponsored by SSA.

The focus of previous studies of SSI eligibility and participation varies. Some studies are primarily designed to conduct distributional analyses to study the impact of various policy alternatives (for example, Sheils and others 1990; Wixon and Vaughan 1991; Vaughan and Wixon 1991; McGarry 2000). Other studies contribute to the literature a better understanding of the factors associated with participation in the SSI program (for example, McGarry 1996; Davies forthcoming). Related to that group of studies are analyses that focus on factors that limit or reduce SSI participation among individuals who appear to be eligible for SSI benefits (for example, Menefee, Edwards, and Schieber 1981; Coe 1985; Choi 1998).

The methodology is fairly consistent across recent studies. In general, survey data are used to develop a microsimulation model of SSI eligibility at a given point in time. Econometric models, including linear probability models and maximum likelihood probit or logit models, are then estimated to examine the decision to participate by eligible individuals. Some studies, such as Hill (1990), develop more complex econometric models to analyze SSI eligibility and participation.

As a direct extension of previous work at SSA (Wixon and Vaughan 1991; Vaughan and Wixon 1991), the primary purpose of our model is to simulate the effects of potential changes to the SSI program rules. In doing so, we focus on key outcomes including the number of eligible individuals, the number of participants, the distribution of SSI benefits among participants, and the poverty status of participants under various policy

Chart 1.
Simplified rules for determining SSI eligibility and benefit amount



regimes. However, we also contribute to the participation literature and provide insights on the differences between survey, self-reported, and administrative measures of SSI participation and benefits.

Data Sources

Our model has a distinct advantage over previous models of SSI eligibility and participation in that we have access to data from the Survey of Income and Program Participation (SIPP) matched to SSA administrative data. Although the SIPP collects very detailed information on a wide variety of topics, including income sources, program participation, and assets, the ability to use administrative data on SSI participation and SSI benefit amounts greatly enhances the accuracy and validity of our model. In this section we briefly describe the SIPP and the matched administrative data and discuss possible extensions to other SIPP panels and other SSA administrative data. Appendix A addresses construction of the sample and the derivation of standard error estimates that appropriately account for the complex sample design.

1990 Survey of Income and Program Participation

The SIPP is a household survey of the noninstitutionalized U.S. population. Our SSI eligibility and participation models are based on the 1990 panel of the SIPP. The 1990 panel consists of eight interviews, each of which gathered 4 months of retrospective data. All of the data we use pertain to 1991.

The SIPP provides a number of advantages in modeling SSI eligibility and participation. The survey collects detailed data on the sources and amounts of income and assets. Those data allow us to accurately identify the income sources and assets that should be included in (or excluded from) countable income and countable resources under the SSI program rules. The fact that the SIPP also provides the income data on a monthly basis is crucial to the estimation of SSI eligibility, which can vary from month to month.

The SIPP core questionnaire collects detailed information on demographic characteristics and household composition. Some demographic characteristics, such as age and marital status, are used to determine SSI eligibility. Other characteristics, such as sex, race and ethnicity, educational attainment, and health insurance coverage (private, Medicare, Medicaid), are not directly used in the SSI eligibility determination but are important factors in the SSI participation model and are useful for descriptive purposes.

SIPP topical modules are available to supplement the core information. We use information from Topical Module 3 on disability and work limitations to determine categorical eligibility for nonelderly individuals (that is, to determine whether an individual meets the disability criteria for SSI eligibility) and from Topical Module 4 on assets to determine resource eligibility for SSI.

Finally, the SIPP contains sufficient observations to support cross-sectional analyses of large subpopulations (for example, analyses of SSI participants by age category or sex).

SSA Administrative Data

The SIPP is exactly matched to administrative data from five sources (see Table 1), although we currently use only the Supplemental Security Record (SSR) and the Summary Earnings Record (SER). The most important administrative data source for our model is the SSR. As described in more detail below, we replace self-reported SSI participation and benefit amounts from the survey with administrative reports from the SSR. We regard these SSR data items to be of high quality because of their central role in the administration of the SSI program. We use the date-of-birth field on the SER to identify and remove improperly matched records.

Extensions to Other SIPP Panels and Other SSA Administrative Data

Although the 1990 SIPP matched to SSA administrative records is a solid database on which to develop the SSI eligibility and participation models, it has some limitations. First, the data are relatively old. Ideally, policy analysis would be based on up-to-the-minute data so that, for example, simulations of policy changes being considered in 2000 would be based on data from 1999 or 2000. Since that is rarely possible, we adjust our results from the 1990 SIPP to reflect the expected effect of policy changes in 2000. We are updating the model to run on the 1993 and 1996 SIPP, which will provide more current estimates.

Second, the sample size of the 1990 SIPP is not large enough to support detailed analyses of subgroups. We find that 480 elderly individuals are eligible for SSI in the reference month for wave 4 of the 1990 SIPP.[3] Although that number is sufficient for analyzing the characteristics of large groups, multiple SIPP panels need to be combined in order to support more detailed analyses of subgroups. The 1990 SIPP will be combined with the 1993 and 1996 SIPP for this purpose in future work.

Although we do not currently use the Master Beneficiary Record (MBR), the Social Security Number Identification file (Numident), or the National Disability Determination Services System (NDDSS) in our SSI eligibility and participation models, we plan to add them in the near future. We plan to replace self-reported Social Security participation and benefit amounts from the survey with administrative reports from the MBR.

Preliminary analyses suggest that doing so will substantially improve our estimates of eligibility. Data from the NDDSS will clearly be useful as we refine the model's estimates of eligibility and participation among nonelderly individuals with disabilities.

Estimating SSI Financial Eligibility

To be financially eligible for SSI, individuals must have limited assets as well as limited monthly income. For individuals who live with their spouse, SSI eligibility also depends on the spouse's resources and income. Consequently, eligibility is based on the characteristics of "family units" rather than individual characteristics. We estimate SSI financial eligibility for adult units only. Some of the units are couples who report that they are married and that both spouses are present in the household. Other units are unmarried adults or individuals who are separated from their spouse. We create a SIPP analysis file at the unit level and use that file to calculate separate indicators of eligibility based on assets and income.

Asset Eligibility

The SSI thresholds for countable assets are $2,000 for individuals and $3,000 for couples. These values have not changed since 1989, which implies that the real value of the asset thresholds has declined because of inflation. We define a unit to be asset-eligible if its estimated countable assets are below the relevant asset threshold.

We estimate countable assets by summing the SIPP self-reported amounts for savings accounts, checking accounts, Keogh accounts, savings bonds, money market accounts, stock and mutual fund equities, individual retirement accounts, mortgages, money owed from the sale of business or property, other financial investments, countable vehicle equity, and countable real estate equity.

We exclude the car, truck, or van with the greatest equity from our estimate of countable vehicle equity. The SSI program rules limit this exclusion to $4,500 unless the vehicle is used for medical or work-related purposes. Since any car might be used for transportation to a hospital or doctor's office, we believe that excluding the vehicle with the highest equity is a reasonable approximation of the program rules. We sum the equity in the remaining vehicles, including all equity in boats and motorcycles.

The primary residence is not a countable asset for SSI purposes. Other real estate generally is counted except that $6,000 per rent-generating property may be excluded under the property essential to self-support (PESS) rule.[4]

Table 1.
Summary of SSA administrative data matched to the SIPP

Source of data	Coverage	Key data items
Supplemental Security Record	SSI applicants and recipients	Social Security number, monthly SSI payment status, monthly federal SSI benefit amount, monthly federally administered state supplement amount, date of birth, sex, disability diagnosis code, application date, date of first payment, monthly countable earned and unearned income, state and county code
Master Beneficiary Record	OASDI applicants and beneficiaries	Social Security number, payment eligibility history, sex, race, date of birth, primary insurance amount, average indexed monthly earnings, state and county code, current date of entitlement, date of filing, type of claim, disability diagnosis code, and dual entitlement status code
Summary Earnings Record	All workers	Social Security number, annual Social Security-covered earnings from 1951 to the present, sex, race, date of birth, date of death
Social Security Number Identification (Numident) file	All Social Security number holders	Social Security number, date of birth, date of death
National Disability Determination Services System	All disability decisions (SSI and DI)	Social Security number, beneficiary identification code, filing date, type of claim, date of disability decision, result of disability determination, date of birth, disability diagnosis codes, date disability period began

NOTE: SIPP = Survey of Income and Program Participation; SSI = Supplemental Security Income; OASDI = Old-Age, Survivors, and Disability Insurance; DI = Disability Insurance.

We note that the PESS rule has very little effect on our eligibility estimates, but we do make this exclusion in our model.

One limitation of our asset estimates is that we do not know the cash surrender value of life insurance policies for SIPP respondents. The cash surrender value is a countable asset if it exceeds $1,500. We considered substituting the face value for the cash surrender value of insurance but found that doing so gave many of the SIPP's SSI beneficiaries high insurance "resources" that made them ineligible for SSI. Term life insurance, with a cash surrender value of zero, has become increasingly common in recent years. We therefore ignore life insurance. We also ignore the possibility that individuals may set aside up to $1,500 for burial expenses.

Income Eligibility

The amount of the federal SSI benefit the unit may receive is the difference between countable income and the maximum benefit (the federal benefit rate, or FBR). We define a unit to be income eligible for SSI if its estimated countable income is below the maximum federal SSI benefit. Unlike the asset cutoffs, the maximum federal SSI amounts are indexed to the consumer price index. In 1991, the FBR was $407 for individuals and $610 for couples.[5] (In 2002 the FBR is $545 for individuals and $817 for couples.)

Not all income is countable under SSI rules. General Assistance, foster care, and child support are entirely excluded from countable income. The general income exclusion (GIE) and the earned income exclusion (EIE) also affect countable income. The first $20 of unearned monthly income is excluded from countable income based on the GIE rules. If the unit does not have $20 of unearned income, the $20 GIE (or its remainder) is applied to earned income. Under the EIE rules, the first $65 is excluded along with half of the remaining earned income.

For couples, countable income depends on the SSI categorical eligibility of both spouses. People are categorically eligible if they are disabled or aged 65 or older. Although our focus is on individuals who are categorically eligible because of age, some of those people have a younger spouse whose categorical eligibility depends on disability status. Estimating whether people are disabled according to SSI definitions is beyond the scope of our financial eligibility model. Instead we rely on an indicator of SSI medical eligibility developed by Lahiri, Vaughan, and Wixon (1995) and tested by Hu and others (1997). Because constructing this indicator required data from several SIPP waves, it is missing for about 10 percent of our sample. When the disability indicator is not available, we assume that an individual would be categorically eligible for SSI under any of the following conditions: the individual reports being unable to see words and letters in ordinary newsprint, the individual is receiving Title II Social Security disability benefits, or the individual reports that health conditions limit the kind or amount of work he or she can do. We recognize that this definition is a gross oversimplification of disability status, but for our limited needs in determining spousal eligibility for deeming (about 10 percent of the sample), we find it to be sufficiently consistent with the Lahiri, Vaughan, and Wixon (1995) disability indicator.

When both spouses are categorically eligible, their combined countable income is compared with the FBR for couples. However, if only one spouse is categorically eligible, the actual benefit amount is the lesser of (1) the individual benefit amount that the categorically eligible spouse would receive on the basis of his or her own income and (2) the couple benefit based on income from both spouses. Certain special rules apply to the calculation of deemable income from categorically ineligible spouses. Deeming never takes place if the spouse's income is less than half of the individual FBR or if the spouse receives public income maintenance payments.[6] Moreover, deeming may be limited by the presence of minor children.[7] For each minor child present in the family, an amount equal to one-half of the individual FBR is excluded from spousal deeming. According to program rules, these child exclusions are reduced by the amount of other income that the children have. Our estimates account for child support payments but do not attempt to account for other types of income that the minor children might have.

Our estimates of countable income begin with SIPP measures of monthly earned and unearned income. We subtract SSI income and the other types of unearned income that are not countable. For categorically ineligible spouses, we determine whether any earned or unearned income should be deemed to the unit. We then apply the GIE and EIE to generate countable unearned and earned income amounts for the unit. Finally, we sum these two amounts into a single estimate of countable income. In order for the unit to be income eligible, this countable income must be less than the FBR for the unit.

SSI Eligibility

We define units to be financially eligible according to our model if we estimate them to be both asset eligible and income eligible. Individuals within financially eligible units are not actually eligible for SSI unless they are elderly or disabled. The SSI-eligible population that we focus on for the remainder of this article consists of all elderly individuals who are members of financially eligible units.

Not surprisingly, the demographic characteristics of aged individuals who are eligible for SSI are quite different from the characteristics of those who are not (see Table 2). For example, the average total SSI-countable income for eligible units is $264, compared with $1,878 for noneligible units. Even more dramatic is the difference in SSI-countable resources—just $248 for eligible individuals compared with over $80,000 for those who are not eligible. Eligible individuals also have much lower levels of monthly earnings and Social Security benefits; are less likely to be covered by Medicare, to be born in the United States, and to be U.S. citizens; and are more likely to receive Food Stamps and to be covered by Medicaid. Furthermore, the distribution of eligible individuals by marital status, race, Hispanic ethnicity, and educational attainment is much different than for those who are not eligible. Specifically, eligible individuals are more likely to be divorced, separated, or widowed; black or Hispanic; and to have completed less than a high school education. All of these observed differences substantiate prior expectations and conform to the definition of SSI eligibility: individuals who are eligible for SSI benefits have very little in the way of economic resources, human capital, and family support.

Analysis of Program Participation

In this section we discuss the measurement of program participation, the development of our participation model, and the empirical results from that model. Our analysis of the measurement of participation covers both the aged and working-age disabled, although our analysis of substantive results in this article is limited to the aged.

Measurement of Program Participation

The SIPP measures the receipt of both federal SSI benefits and state supplementation. The SSR contains monthly information on the receipt of SSI payments. Since our model of financial eligibility is a model of financial eligibility for federal SSI benefits, we define SSI participation on the basis of participation in the federal SSI program. Any person 18 years of age or older with a positive federal SSI payment amount for the reference month should, conceptually, be regarded as a participant. Huynh, Rupp, and Sears (2002) provide a detailed comparison of SIPP and administrative data on SSI and Social Security participation and benefits.

From the SIPP and the SSR, we have three different measures of SSI participation, because the SSR contains two conceptually different payment fields. The federal computational amount (FEDAMT) reflects SSA's current assessment of the amount of benefits for which the person is eligible during a given month. That amount is essentially the one that is *posted* to the beneficiary for a given month. It may be different from actual benefit payments because of possible overpayments or underpayments that add to or offset this amount. In contrast, the federal payment amount (FEDPMT) reflects the actual federal money paid in a given month, including back payments for previous underpayments or deductions for previous overpayments.[8] In that sense, it represents the amount that was actually *disbursed* to the individual in the month.

We compared the unweighted counts of participants using FEDAMT and FEDPMT (both aged and working-age disabled are included in the following tabulations). The two measures produce similar overall results (see Table 3). Of the 35,605 unweighted observations in our file, 98 percent are identified as nonparticipants, and 1.8 percent are identified as participants by both measures. However, 0.13 percent of the total are identified as participants by the FEDAMT measure but as nonparticipants by the FEDPMT measure, and the reverse occurs in 0.04 percent of the cases. Overall, FEDPMT identifies a slightly lower fraction of the overall total as participants (1.88 percent) than does FEDAMT (1.97 percent).

Because the FEDPMT measure is conceptually closer to the survey concept of participation, we focus on FEDPMT in comparisons with the SIPP measure. The differences are larger in this comparison (see Table 3). Overall, the SIPP identifies a higher proportion of the file as participants (2.34 percent) than does FEDPMT (1.88 percent). Although the two sources consistently identify 97.46 percent of the observations as nonparticipants and 1.68 percent as participants, the 0.67 percent of observations identified as participants in the SIPP but as nonparticipants by FEDPMT, and the 0.20 percent with the reverse discrepancy, are relatively large compared with the proportion consistently identified as participants. Although the consistent identification of 97.46 percent of the observations suggests good performance in *screening out* SSI participants from the general population, it does not imply great precision if the focus is on *screening in* SSI participants.

If our focus is on measuring SSI participation rather than on the relevant overall population, the importance of survey measurement error becomes apparent. Assuming that the FEDPMT information reflects "true" participation, the SIPP overestimates SSI participation, overall, by 24 percent [(2.34/1.88-1)*100]. In addition, almost 30 percent of individuals identified as SSI participants in the SIPP are shown to be nonparticipants in administrative records, and about 11 percent of "true" participants as measured by administrative records are coded as nonparticipants in the SIPP.

Table 2.
Characteristics of units and individuals aged 65 or older, by SSI eligibility status, 1991

Characteristic	Eligible		Not eligible	
	Mean	Standard error	Mean	Standard error
		Unit level (dollars)		
SSI benefit amount (model based)	162.22	7.41	. . .	. . .
Total SSI-countable income (monthly)	264.46	10.31	1,878.12	30.99
Total SSI-countable resources	247.86	32.56	80,706.31	3,565.02
Total family income (monthly, including SSI)	1,047.95	71.71	2,349.82	37.43
		Individual level		
Age (years)	74.46	0.36	73.20	0.10
Sex (percentage female)	75.96	2.19	56.42	0.63
Marital status (percentage distribution)				
Married, spouse present	22.34	3.19	57.69	0.95
Divorced, separated, spouse absent	19.25	2.27	6.17	0.36
Widowed	49.53	3.18	31.48	0.87
Never married	8.88	1.37	4.66	0.36
Race (percentage distribution)				
White	63.89	2.67	92.15	0.49
Black	31.54	2.43	6.61	0.44
American Indian, Alaska Native	0.56	0.32	0.13	0.04
Asian, Pacific Islander	4.00	1.14	1.11	0.22
Hispanic (percent)	16.04	1.86	2.76	0.26
Born in the United States (percent)	66.59	3.01	82.62	0.72
U.S. citizen (percent)	73.25	2.77	88.08	0.65
Education (percentage distribution)				
Less than high school	80.64	2.55	40.57	0.89
High school	14.83	2.12	31.07	0.71
More than high school	4.53	1.26	28.36	0.83
Earnings (dollars/month)	9.95	3.47	162.19	11.18
Social Security benefits (dollars/month)	223.32	8.67	545.98	4.61
Welfare benefits (TANF and GA, dollars/month)	4.24	0.97	2.89	0.47
Food Stamp participant (percent)	31.61	2.87	1.75	0.25
Medicaid (percentage covered)	68.74	2.52	2.68	0.27
Medicare (percentage covered)	91.85	1.65	98.19	0.19
General health status (percentage distribution)				
Excellent, very good	8.71	1.35	28.60	0.81
Good	28.90	2.36	34.81	0.78
Fair	32.05	2.65	25.15	0.68
Poor	30.34	2.72	11.45	0.57
Number of observations				
Weighted	2,017,197		28,201,840	
Unweighted	480		5,549	

SOURCES: Estimates are from the SSI Financial Eligibility Model, based on the 1990 Survey of Income and Program Participation (SIPP), wave 4, month 4, exactly matched with the Social Security Administration's Supplemental Security Record, Summary Earnings Record, and Numident file.

NOTES: The institutionalized population is excluded from all estimates. All statistics are weighted using the SIPP wave 4 sample weights. Standard errors are computed using a Taylor-series approximation to correct for the complex sample design of the SIPP.

TANF = Temporary Assistance for Needy Families; GA = General Assistance; . . . = not applicable.

Chart 2 illustrates the relationship between measured participation status based on the SIPP and the SSR FEDPMT variable for simulated eligibles. It also provides similar information for simulated ineligibles.

What measure should we use in the analysis? A priori reasoning suggests that FEDPMT is superior to FEDAMT because the former reflects actual payments. FEDPMT also appears superior to survey self-reported participation because the administrative records that are used to generate the actual payments should be of high quality and should not be affected by reporting bias. In addition, we find a better empirical fit between our SSI eligibility model and FEDMPT than with either of the other two measures in terms of the proportion of measured SSI participants predicted to be eligible by our model.[9] Because of the conceptual superiority and better empirical fit of the FEDPMT variable, we use it as the measure of participation.

Is our measure of SSI eligibility consistent with our measure of participation? Appendix B addresses this issue in some detail. Essentially, replacing the survey measure of participation with FEDPMT and other changes (treatment of life insurance) dramatically reduce the proportion of participants classified as ineligible, but a substantial portion remain. The distribution of the remaining ineligible participants and the reason for ineligibility are provided in Table 4. There are plausible explanations for most of these cases, and the data are sufficiently accurate to be used for modeling participation among the elderly.

Descriptive Data on Eligibility and Participation

SSI-eligible participants and SSI-eligible nonparticipants aged 65 or older present quite different demographic profiles (see Table 5). In particular, among eligible participants, the average calculated SSI benefit from the SSI eligibility model ($190.70) is within $0.60 of the average SSI payment to eligible participants from the SSR ($190.14). On average, our SIPP-based eligibility model predicts SSI benefit amounts remarkably well.

Although there are many substantial differences between eligible participants and eligible nonparticipants, the differences are not as pronounced as those between individuals who are and are not eligible for SSI. Eligible participants have a much higher calculated SSI benefit (from the SSI eligibility model) than do eligible nonparticipants, which is consistent with their lower SSI-countable income. Eligible participants on average also have substantially fewer SSI-countable resources. Furthermore, eligible participants are more likely to be divorced or widowed, to be Hispanic, to participate in the Food Stamp program, and to have Medicaid coverage. They are less likely to be born in the United States, to be a U.S. citizen, and to have completed high school. Average Social Security benefits are somewhat lower for eligible participants than for eligible nonparticipants. General health status is noticeably poorer among eligible participants: a larger proportion of eligible participants are in poor health (self-reported), but a larger proportion are in excellent or very good health as well. A plausible interpretation is that, other things being equal, excellent or very good health increases access to SSI.

The overall participation rate among all eligible individuals aged 65 or older is 62.4 percent (Table 6). That rate is somewhat higher than prevailing estimates in the literature, which generally range between 50 percent and 60 percent (see, for example, Warlick 1982; Sheils and others 1990; McGarry 1996; Davies forthcoming; and

Table 3.
Two definitions of SSI participation from SSA's administrative records

Participation based on federal SSI payment amount (FEDPMT)	Nonparticipant		Participant		Total	
	Number	Percent	Number	Percent	Number	Percent
	Participation based on federal SSI computation amount (FEDAMT)					
Nonparticipant	34,889	97.99	47	0.13	34,936	98.12
Participant	14	0.04	655	1.84	669	1.88
Total	34,903	98.03	702	1.97	35,605	100.0
	Participation based on SIPP					
Nonparticipant	34,699	97.46	237	0.67	34,936	98.12
Participant	72	0.20	597	1.68	669	1.88
Total	34,771	97.66	834	2.34	35,605	100.0

SOURCE: 1990 Survey of Income and Program Participation (SIPP), wave 4, month 4, exactly matched with the Social Security Administration's Supplemental Security Record, Summary Earnings Record, and Numident file.

McGarry 2000). As discussed previously, our data allow us to use measures of SSI participation directly from SSA's administrative records. Those records are thought to be of much higher quality than survey reports of SSI participation because of their central role in the administration of the SSI program. We therefore believe that our estimate of the SSI participation rate is more accurate than previous estimates that use survey data alone.

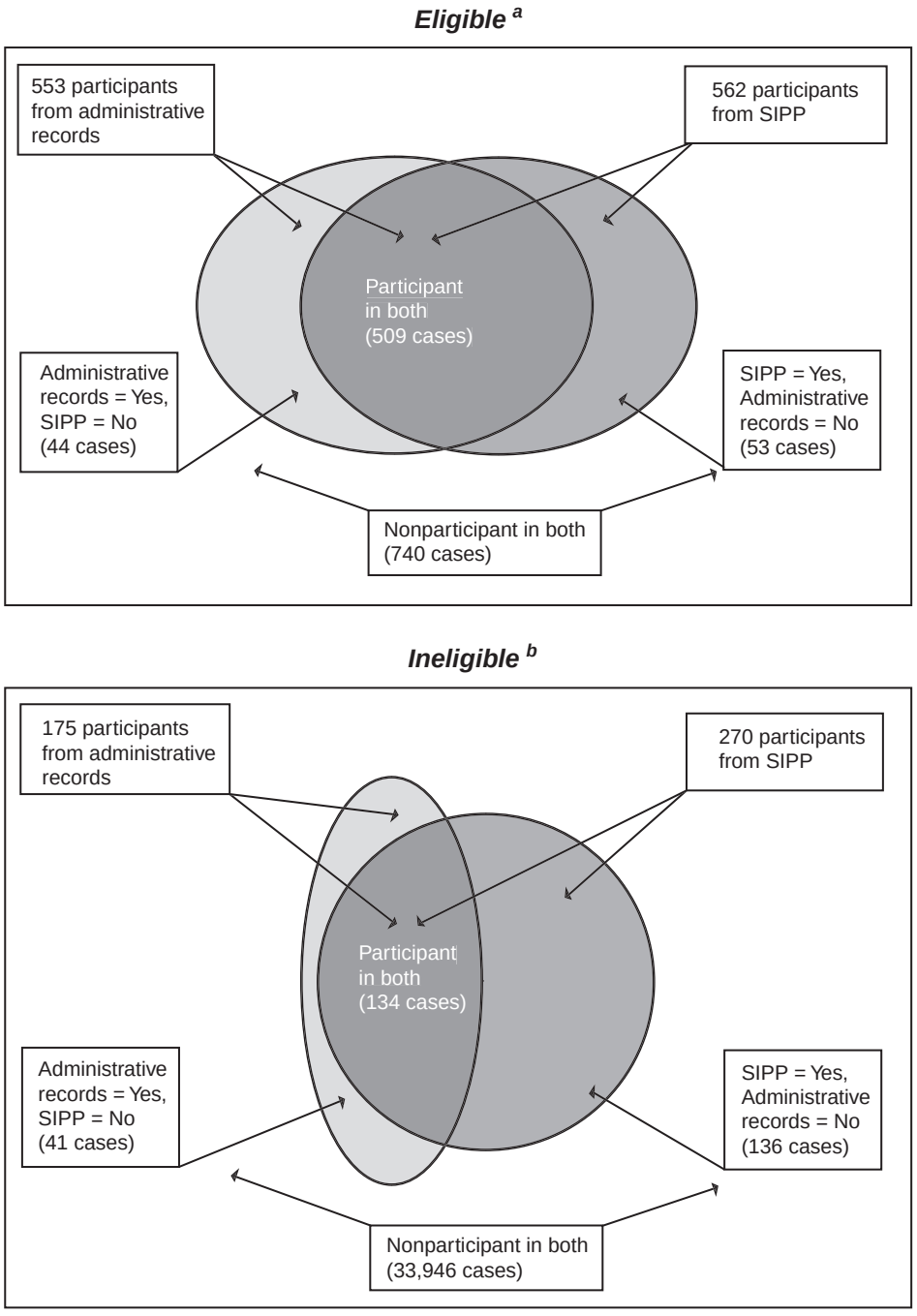
The participation rate among eligible individuals aged 65 or older also varies by individual characteristics (see Table 6). The participation rate is substantially higher for women than men, for all marital status categories relative to married individuals, and for Hispanics relative to non-Hispanics. African American and white individuals have very similar participation rates. Noncitizens have a much higher participation rate than citizens.

Differences in participation rates by educational attainment and by general health status may appear somewhat puzzling. Individuals with more than a high school education have a higher participation rate than individuals with a high school degree. Individuals in excellent or very good health have a higher participation rate than individuals in good, fair, or poor health, although the participation rate for those in poor health is also quite high. One possible explanation is that both higher educational attainment and excellent health contribute to greater access because of access to information (awareness of program rules), physical access (transportation), or both.

Measured vs. Actual Nonparticipation

One important issue concerning the policy interpretation of our

Chart 2.
SSI participation status among simulated eligibles and ineligibles as measured by SIPP and SSA administrative records



SOURCES: Survey of Income and Program Participation and Supplemental Security Record.

NOTES: SSI = Supplemental Security Income; SIPP = Survey of Income and Program Participation; SSR = Supplemental Security Record.

a. Chart is based on 1,346 unweighted sample observations. The size of the area of each section of the chart is not proportional to the number of observations and therefore should be viewed as illustrative of broad patterns rather than an exact representation. SSR data reflect actual payment status.

b. Chart is based on 34,257 unweighted observations. The size of the area of each section of the chart is not proportional to the number of observations and therefore should be viewed as illustrative of broad patterns rather than an exact representation. In particular, note that the relative size of the "Nonparticipant in both" group is substantially underrepresented by the corresponding area of the chart. SSR data reflect actual payment status.

estimated participation rate is whether and to what extent the results represent problems with the measurement of nonparticipation as opposed to "true" nonparticipation among eligibles. Policy concerns about nonparticipation and outreach interventions are thus predicated on the notion that measured nonparticipation among eligibles reflects genuine nonparticipation. In our case, the measured degree of nonparticipation is almost 40 percent among the elderly.

Since our measure of participation is based on administrative records and can be reasonably treated as highly accurate, the issue of measurement error boils down to the measurement of the pool of eligibles. Measurement error could arise either from the eligibility model or, more likely, from the SIPP data used as inputs to calculate eligibility. Although our eligibility model uses some simplifying assumptions (for example, we ignore in-kind support and the face value of life insurance policies), we see no obvious reason to believe that those assumptions would substantially and significantly bias our estimate of the pool of eligibles. Thus we are essentially left with the possibility that measurement error arises from the SIPP data. There are three principal variables in the SIPP to consider as a source of error: age, income, and assets.

Age. Though a possible source of error, age is generally believed to be reasonably well measured in both administrative data and the SIPP.[10] Any random error that occurred in measuring age in either or both should not pose a serious problem in estimating participation rates. One possible source of observed discrepancies in the age information from matched administrative records and the SIPP is not rooted in measurement error in either data set but could be cause for concern—the possibility that a mismatch exists between SIPP observations and administrative records that is attributable to misreporting of Social Security numbers by SIPP respondents. The mismatch could cause some systematic error in estimating rates of participation even if the misreporting of Social Security numbers was totally random and age was measured with complete precision in both data sets. The reason is that the true rate of participation among the elderly is much higher than among the working aged, because SSI eligibility for the elderly is not conditioned on disability status but it is for the nonaged. Thus, even random misclassification of people by age could dilute the measured participation rate. Nevertheless, given that the incidence of observed mismatch by age larger than a year in absolute value is fairly small and that only misclassification that occurs among those over the age of 65 should be of concern here, factors related to misreporting of age or Social Security number should not substantially bias the measured rate of nonparticipation.

Income. With respect to income, the principal concern is possible underreporting.[11] Such underreporting would produce an upward bias in the estimate of the number of eligibles and therefore would artificially depress the measured participation rate. The SIPP provides substantial detail on monthly income sources and amounts. We are unaware of any *substantial* concerns or evidence of systematic underreporting of income, particularly among the elderly.[12] Some evidence suggests that people tend to report Social Security income net of Medicare Part B premium withholdings, but that is unlikely to explain measured nonparticipation of almost 40 percent. Moreover, some factors are operating in the opposite direction, such as possible misreporting of SSI income as Social Security by some persons. Another possible concern is unreported income from the underground economy, which may arise with respect to unreported employment or investment income. Neither is plausibly an important source of income among the relatively poor elderly. Overall, we believe that underreporting of income is an unlikely explanation for the measured nonparticipation among the elderly.

Assets. The possible underreporting of assets is the only remaining explanation, but it does not appear to be a plausible source of the measured nonparticipation in SSI among the elderly. The SIPP is believed to do a rela-

Table 4.
Ineligible participants, by source of ineligibility and age group

Source of ineligibility	Nonelderly (18–64)	Elderly (65 or older)	Total
	Income eligible		
Resource eligible			
Categorically eligible	. . .	. . .	. . .
Categorically ineligible	69	. . .	69
Resource ineligible			
Categorically eligible	9	4	13
Categorically ineligible	1	. . .	1
	Income ineligible		
Resource eligible			
Categorically eligible	29	38	67
Categorically ineligible	15	. . .	15
Resource ineligible			
Categorically eligible	2	6	8
Categorically ineligible	2	. . .	2
Total	127	48	175

SOURCE: Estimates are from the SSI Financial Eligibility Model, based on the 1990 Survey of Income and Program Participation, wave 4, month 4, exactly matched with the Social Security Administration's Supplemental Security Record, Summary Earnings Record, and Numident file.

NOTE: . . . = not applicable.

Table 5.
Characteristics of SSI-eligible units and individuals aged 65 or older, by SSI participation status, 1991

Characteristic	Participants		Nonparticipants	
	Mean	Standard error	Mean	Standard error
		Unit level (dollars)		
SSI benefit amount				
Based on eligibility model	190.70	10.55	114.90	10.54
Federal payment amount	190.14	7.73 [a]	. . .	. . .
Total SSI-countable income (monthly)	230.56	13.66	320.79	14.00
Total SSI-countable resources	192.08	45.14	340.52	46.19
Total family income (monthly, including SSI)	1,115.23	91.14	936.17	84.31
		Individual level		
Age (years)	74.54	0.45	74.31	0.50
Sex (percentage female)	77.44	2.88	73.49	3.19
Marital status (percentage distribution)				
Married, spouse present	19.87	4.13	26.44	4.17
Divorced, separated, spouse absent	20.79	3.17	16.71	3.00
Widowed	49.44	4.41	49.66	4.56
Never married	9.90	1.71	7.19	2.21
Race (percentage distribution)				
White	64.05	3.55	63.63	4.25
Black	31.26	3.19	32.01	4.07
American Indian, Alaska Native	0	0	1.50	0.87
Asian, Pacific Islander	4.70	1.75	2.85	1.37
Hispanic (percent)	17.43	2.64	13.72	2.64
Born in the United States (percent)	65.26	3.80	68.81	4.00
U.S. citizen (percent)	69.72	3.79	79.12	3.06
Education (percentage distribution)				
Less than high school	81.94	3.19	78.47	3.38
High school	13.63	2.72	16.84	2.80
More than high school	4.43	1.64	4.69	1.79
Earnings (dollars/month)	1.53	1.25	23.94	8.73
Social Security benefits (dollars/month)	208.24	11.74	248.37	10.78
Welfare benefits (TANF and GA, dollars/month)	4.83	2.01	3.26	1.51
Food Stamp participant (percent)	44.18	3.96	10.72	2.25
Medicaid (percentage covered)	95.72	1.22	23.92	3.76
Medicare (percentage covered)	91.87	2.12	91.81	2.09
General health status (percentage distribution)				
Excellent, very good	9.78	1.89	6.92	2.19
Good	24.83	3.55	35.69	3.66
Fair	32.18	3.52	31.82	4.05
Poor	33.20	3.70	25.57	3.59
Number of observations				
Weighted		1,259,276		757,921
Unweighted		292		188

SOURCE: Estimates are from the SSI Financial Eligibility Model, based on the 1990 Survey of Income and Program Participation (SIPP), wave 4, month 4, exactly matched with the Social Security Administration's Supplemental Security Record, Summary Earnings Record, and Numident file.

NOTES: The institutionalized population is excluded from all estimates. All statistics are weighted using the SIPP wave 4 sample weights. Unless otherwise noted, standard errors are computed using a Taylor-series approximation to correct for the complex sample design of the SIPP.

TANF = Temporary Assistance for Needy Families; GA = General Assistance; . . . = not applicable.

a. The standard error for the SSI payment amount is not corrected for complex sample design of SIPP and is therefore biased downward.

tively good job in measuring asset income. Moreover income and assets are correlated: those who are income eligible are likely to have low assets as well. Although we cannot altogether discount the possibility that underreporting of assets helps explain measured nonparticipation (particularly because of the relatively low SSI asset limits), we are not aware of any evidence suggesting that it does.

Despite some uncertainty concerning the relative contribution of true nonparticipation and measurement error, our overall assessment is that measurement error does not explain away observed nonparticipation, and the evidence clearly suggests the existence of some, possibly substantial nonparticipation in SSI among the elderly. This conclusion is also supported by positive evidence as well.

First, participation may be affected by the opportunity costs that eligibles face in applying, imperfect information, and perceived stigma. All of these factors reduce the demand for program participation among eligibles.

Second, one can reasonably argue that administrative practices and other factors related to the application process are unlikely to result in incorrect denials of true eligibles (among the elderly) and therefore provide no credible explanation of measured nonparticipation. We are unaware of substantial incentives or evidence for field office personnel to turn away eligible elderly. If anything, field office personnel may reduce their workload by not collecting comprehensive information on all possible sources of income and asset eligibility, although quality control reduces the incentives to do so. Moreover, applicants face incentives to underreport income and assets—and certainly more so in applying for benefits than in responding to a national survey. Finally, although changes in income, assets, and living arrangements may make initially eligible awardees subsequently ineligible, one can reasonably assume that SSA often fails to detect such changes in eligibility status or detects them with some lag. These considerations are supported by evidence from our model revealing that a nontrivial proportion of participants are ineligible.

Third, outreach demonstrations appear to have succeeded in increasing participation in SSI. The most plausible explanation is that the demonstrations successfully identified and enrolled *eligible* nonparticipants, thus providing prima facie evidence of the existence of a pool of nonparticipants.

Overall, these programmatic factors suggest that measured nonparticipation is real, not a simple artifact of measurement error. Having said that, it is also clear that 100 percent participation among eligibles would not be a reasonable objective because of a variety of factors, including the voluntary nature of the program and operational difficulties.

Table 6.
SSI participation rate among eligible individuals aged 65 or older, by individual characteristics, 1991

Characteristic	Participation rate	Standard error
All eligible individuals aged 65 or older	62.43	2.73
Age category		
65–74	63.08	3.66
75 or older	61.75	3.37
Sex		
Men	58.57	4.95
Women	63.65	3.05
Marital status		
Married, spouse present	55.53	6.96
Divorced, separated, spouse absent	67.39	5.95
Widowed	62.32	3.79
Never married	69.57	7.88
Race		
White	62.58	4.02
Black	61.87	3.82
American Indian, Alaska Native	0	0
Asian, Pacific Islander	73.23	12.88
Ethnicity		
Hispanic	67.86	6.26
Not Hispanic	61.39	2.88
Country of birth		
Born in the United States	61.12	3.13
Born elsewhere	64.87	4.72
Citizenship status		
U.S. citizen	59.36	3.12
Not U.S. citizen	70.62	4.69
Education		
Less than high school	63.44	2.99
High school	57.35	6.42
More than high school	61.07	12.59
General health status		
Excellent, very good	70.25	8.40
Good	53.74	5.98
Fair	62.80	4.97
Poor	68.43	4.03
Number of eligibles		
Weighted	2,017,197	
Unweighted	480	
Number of participants		
Weighted	1,259,276	
Unweighted	292	

SOURCE: Estimates are from the SSI Financial Eligibility Model, based on the 1990 Survey of Income and Program Participation (SIPP), wave 4, month 4, exactly matched with the Social Security Administration's Supplemental Security Record, Summary Earnings Record, and Numident file.

NOTES: The institutionalized population is excluded from all estimates. All statistics are weighted using the SIPP wave 4 sample weights. Standard errors are computed using a Taylor-series approximation to correct for the complex sample design of the SIPP.

SSI Participation Model

The participation model is a simple probit. The dependent variable P_i is an indicator variable for a positive SSI payment for the unit, according to SSA administrative records.

$$P_i = f(\mathbf{X_i}, B_i; \beta, \delta) + \varepsilon_i \qquad \varepsilon_i \sim N(0,\sigma^2)$$

where $P_i \equiv \begin{cases} 1 \text{ if SSI payment} > 0 \\ 0 \text{ otherwise} \end{cases}$ for the i^{th} unit

$\mathbf{X_i} \equiv$ vector of demographic characteristics

$B_i \equiv$ expected SSI benefit (from the SSI eligibility model)

$\beta \equiv$ vector of coefficients attached to $\mathbf{X_i}$

$\delta \equiv$ coefficient attached to B_i.

For each unit i, $\mathbf{X_i}$ contains demographic information for the unit head, including age, sex, race and ethnicity, marital status, educational attainment, home ownership, pension receipt, contact with Social Security, place of birth (United States or elsewhere), U.S. citizenship, health, expected benefits, and state dummies.

As with McGarry's (1996) model, the expected SSI benefit (B_i) is hypothesized to be positively related to SSI participation. In this article we operationalize expected SSI benefits as the sum of the amount of federal SSI benefit dollars calculated by our eligibility model, plus maximum state supplement amounts for SSI recipients adjusted by categories of health and other status. Thus our measure is based on a fairly comprehensive method to derive expected federal benefits and on a simplified method of measuring expected state benefits. As a result, the variable can be regarded as a proxy measure of expected total (federal and state combined) SSI benefits. The model follows Yelowitz (1998), incorporating Medicaid as a predictor variable. For this analysis, however, we do not compute the budget constraint with the Medicaid notch. Instead, we use average state Medicaid expenditures on SSI recipients to approximate the effect of Medicaid on SSI participation. Appendix C provides a more detailed description of the data and procedures used to derive maximum state SSI supplements and average Medicaid benefits.

In the simple probit model, the coefficient on the SSI benefit amount is not statistically significant, although it is positive and similar in magnitude to estimates in previous studies (see Table 7). Many of the other coefficients are statistically significant and have the expected sign. For example, high school graduates are significantly less likely to participate in the SSI program, relative to those with less than a high school education. Those who own their own home and own a car also are significantly less likely to participate. The number of doctor visits in the previous 12 months is positively related to SSI participation. Those born in the United States are more likely to participate than immigrants, but U.S. citizens are less likely to participate. The combined effect is relatively small. Among immigrants, the participation probability varies by entry cohort. The data suggest that obtaining U.S. citizenship offsets the possibly higher SSI participation among immigrants. The coefficient on the disability indicator is negative and significant, which is unexpected. However, it is an indicator of work-related disability and thus should be interpreted in conjunction with the recent work experience coefficient (negative and significant) and the coefficient on the personal care indicator (positive and significant).

Simulation of Policy Changes

Our interest is in estimating the potential effects of various policy alternatives, which can be done in a number of ways.

Methodology

We develop a static model of policy changes in which the counterfactual represents current conditions, including the number and characteristics of current participants. The simulated conditions are identical to current conditions, with the exception of the policy change. Conceptually, the changes from current to simulated conditions occur instantaneously, with no time allowed for learning and adjustment to the new conditions. Also, we assume that except for the policy change, no other conditions change; that is, no demographic, labor market, or other changes affect the differences between the counterfactual baseline and the simulated policy regime. Although these simplifications certainly do not reflect reality, they have the advantage of keeping the focus clearly on the effects of the proposed policy change. Nevertheless, keep in mind that the effects to be measured with this approach are conditional on baseline circumstances and may be altered in the future if some of those circumstances, for example, the size and composition of the target population, change.

In operational terms, we simulate eligibility under the new program rules by altering the relevant program parameter and rerunning the eligibility model. We estimate participation under the new program rules by applying the estimated coefficients from the baseline participation model to eligibles under the new program rules. Rather than deterministically assigning participation status, we use participation probabilities derived from our multivariate probit model to allocate individuals to the participant and eligible nonparticipant groups. We then

Table 7.
Probit coefficients and marginal effects in the participation model

Variable	Coefficient	Standard error	Marginal effect (dF/dx)
SSI benefit amount	0.0010	0.0007	0.0004
Age (unit head)	-0.0236 **	0.0115	-0.0092
Sex (unit head)	-0.0101	0.2053	-0.0040
Hispanic (unit head)	0.0941	0.2152	0.0365
Black (unit head)	-0.1332	0.1538	-0.0523
Married (unit head)	-0.1771	0.3067	-0.0699
High school graduate (unit head)	-0.3382 **	0.1708	-0.1336
Born in the United States (unit head)	1.0094 ***	0.2897	0.3859
U.S. citizen (unit head)	-0.7870 ***	0.2838	-0.2857
Immigrant, entered U.S. between 1960 and 1980 (unit head)	0.7059 **	0.3213	0.2437
Immigrant, entered U.S. after 1980 (unit head)	0.2236	0.3055	0.0853
Residence in metropolitan statistical area	-0.2277	0.1809	-0.0885
Disability indicator (unit head)	-0.4511 **	0.1943	-0.1781
Poor health (unit head or spouse)	0.1088	0.1719	0.0424
Number of overnight hospital stays in previous 12 months (unit head or spouse)	-0.0090	0.0079	-0.0035
Personal care indicator (unit head)	0.4913 ***	0.1728	0.1873
Number of doctor visits in previous 12 months (unit head and spouse)	0.0215 **	0.0093	0.0084
Average state Medicaid expenditure on SSI participants	-0.0003 ***	0.0000	-0.0001
Own home (unit head or spouse)	-0.2363 *	0.1379	-0.0922
Pension (unit head or spouse)	-0.4375	0.2755	-0.1731
Number of Social Security recipients in household	0.0316	0.1298	0.0124
Social Security (unit head or spouse)	-0.1674	0.2612	-0.0648
Worked at least 1 month in previous 12 months (unit head)	-0.7641 *	0.4500	-0.2946
Earnings variance over previous 12 months (unit head)	-0.0015	0.0017	-0.0006
Own car	-0.4167 **	0.1747	-0.1646
State dummies			
Alabama	2.6267 ***	0.7499	0.4823
Arkansas	3.0460 ***	0.7730	0.4496
California	2.7278 ***	0.7282	0.5542
Florida	3.4787 ***	0.6880	0.5324
Georgia	3.3700 ***	0.7132	0.4755
Hawaii	5.1750 ***	1.0446	0.4307
Illinois	4.8960 ***	0.6452	0.4969
Indiana	5.3915 ***	0.7464	0.4515
Kentucky	4.0152 ***	1.1411	0.4348
Louisiana	3.4573 ***	0.7308	0.4681
Maryland	4.7927 ***	0.7481	0.4489
Massachusetts	7.0506 ***	0.6567	0.4727
Michigan	3.8229 ***	0.7430	0.4476
Minnesota	8.0202 ***	0.5506	0.4955
Mississippi	3.7063 ***	0.8652	0.4611
Missouri	2.4237 **	0.9552	0.4257
New Jersey	6.0995 ***	0.6307	0.4714

Continued

Table 7.
Continued

Variable	Coefficient	Standard error	Marginal effect (dF/dx)
New Mexico	4.6230 ***	1.0024	0.4315
New York	14.2807	. . .	0.8770
North Carolina	4.9786 ***	0.6293	0.5098
Ohio	5.2657 ***	0.6675	0.4629
Oklahoma	2.6237 ***	0.8780	0.4302
Pennsylvania	3.8067 ***	0.6734	0.4807
South Carolina	2.9879 ***	0.7703	0.4601
Tennessee	3.0328 ***	0.7889	0.4505
Texas	3.5431 ***	0.6854	0.5263
Virginia	3.7979 ***	0.7796	0.4473
Washington	5.0274 ***	0.8089	0.4565
West Virginia	3.3805 ***	0.8686	0.4415
Wisconsin	4.8110 ***	1.0027	0.4297
Iowa and North Dakota	3.9876 ***	0.8256	0.4402
Constant	1.7467	1.3263	. . .
Log likelihood	-280.3130		
Pseudo R2	0.1774		
Number of observations			
Weighted	2,044,554		
Unweighted	501		

NOTES:
*The estimated coefficient is statistically significant at the 10 percent level.
**The estimated coefficient is statistically significant at the 5 percent level.
***The estimated coefficient is statistically significant at the 1 percent level.
. . . = not available.

compare outcomes under the new program rules to outcomes under the baseline program rules to determine the potential impact of the policy alternative. We use the benefit amounts predicted by our eligibility model as our measure of expected benefits under both baseline and simulated conditions.

In measuring family income and poverty status under simulation rules, we account for the additional federal SSI benefits that our methodology attributes to the SSI policy change at the individual level. However, we do not model possible interactions between federal SSI benefits and state supplements. Many new SSI recipients under the simulation would receive state supplements (as well as Medicaid). Ignoring these state supplements would cause us to underestimate the effect of policy changes on income and total (federal and state) program costs. In contrast, some states might reduce state supplements for both existing and new beneficiaries, which would dampen the effect of ignoring state supplements in our simulation. But it is unlikely that states' reactions to the liberalization of federal SSI benefit rules would actually result in a complete counterbalancing of the effects of federal changes (zero combined effects) or a net reduction of combined SSI benefits.

We also assume that there are no interactions with other programs. It is not possible to derive solid conclusions about the direction and magnitude of error arising from our simplifying assumptions. Other programs can act as either substitutes or complements to SSI in the economic sense (Rupp and Stapleton 1998, 17-19). For example, Medicaid is a complement to SSI because increases in SSI participation tend to increase Medicaid participation. Temporary Assistance for Needy Families (TANF) benefits are substitutes for SSI, resulting in a dollar-for-dollar reduction of SSI benefits. The interaction of federal SSI benefits with the Food Stamp program is expected to dampen the effect of a change in SSI policy.[13] It will do so because the increase in SSI income resulting from the simulated policy intervention is expected to increase countable income in the determina-

tion of Food Stamp benefits and would therefore decrease Food Stamp benefits.[14] Thus, ignoring Food Stamp interactions is expected to result in an upward bias in the net effects of the SSI policy change on total government outlays.

In other cases, the situation is more complex. For example, liberalized SSI rules could result in concurrent applications and awards to the Social Security Disability Insurance (DI) program (complementarity), whereas DI benefits offset SSI benefits essentially dollar for dollar. Thus the substitute or complementary nature of interactions with other programs needs to be assessed in evaluating the possible biases arising from omitting such interactions in our simulation.

None of our simulations involve changes in Social Security benefits. Social Security retirement is an entitlement rather than a means-tested program. Therefore our simulations should have no effects on the receipt and amount of Social Security retirement benefits. However, changes in those benefits might affect SSI. Our model easily accommodates SSI simulations that may involve such changes; we simply alter the amount of Social Security benefits used to calculate total family income.

Finally, an important issue in conducting the simulations is how to make results based on 1991 data useful to policymakers who are concerned about the effects of changing policy today. We implement a two-part strategy to deal with this concern.

First, we deflate the value of the change in the program parameter to 1991 dollars so that the current simulation more closely reflects what would have happened in 1991 if a policy change of the same magnitude had been implemented. For example, if policymakers today were considering an increase in the unearned income disregard from $20 to $80, we would deflate the $60 change to 1991 dollars for the simulation.[15]

Second, we adjust the simulated outcomes from 1991 based on the current number of actual SSI participants aged 65 or older and the current average federal benefit payment to SSI participants in that age group. For example, if our simulation shows that the number of participants in 1991 would increase by 25 percent and that the average benefit would increase by 5 percent, we apply those percentage changes to the current number of actual participants aged 65 or older and the current average benefit for participants in that age group to simulate what would happen if the policy change were implemented today. Although this adjustment requires a number of relatively strict behavioral assumptions, we consider it appropriate. Future simulation efforts will use more recent SIPP panels matched to administrative data.

Outcomes

We focus on five primary outcomes to assess the effects of the various policy alternatives:

1. SSI eligibility,
2. SSI participation,
3. Average SSI benefit amounts,
4. Poverty rate, and
5. Poverty gap.

The first three outcomes are obvious choices. We focus on the poverty rate and poverty gap as key outcomes, both among SSI participants and among the entire population aged 65 or older, because the SSI program is designed to provide income support to a population with very low income. The central goal of the program is to assist recipients in escaping extreme poverty. Therefore, the degree to which policy changes would reduce the poverty rate or poverty gap among participants is a natural choice for gauging the impact of the policy alternative. Only relatively large policy changes will have an impact on the poverty rate of the entire population 65 or older. The absolute change in the poverty gap for that population should be equal to the absolute change in the poverty gap for SSI participants, but the relative change will obviously differ. Because federal SSI benefits provide only a subpoverty level of income for the elderly, the poverty rate may not be sufficiently sensitive to measuring outcomes. In contrast, the poverty gap is sensitive to income changes at the subpoverty level but does not give credit to income increases above the poverty line. Thus the two measures complement each other (Rupp, Strand, and Davies 2001).

Other outcomes resulting from the policy change also can be measured—for example, changes in the racial and ethnic composition of SSI participants or differences in health and functional limitations between baseline participants and new participants. However, sample sizes are generally too small to support such detailed comparisons between subgroups with any degree of statistical precision. In the future, as we add other SIPP panels to the model, more detailed subgroup analyses should become feasible.

Another complication we encountered in characterizing the changes in outcome measures was that the policy changes may not only affect current participants but also bring in new participants. Therefore, changes in the observed average outcomes, such as monthly benefits, may be influenced by both the changes experienced by current participants and the inflow of new participants. For example, even if one considers a policy change that by definition can only increase the benefit of individual participants, the average benefit level for the new pool of participants may appear to have gone down relative to

the average for the old pool under baseline conditions. This situation would occur if the increase in the average benefit level of baseline participants were overwhelmed by the substantially lower average benefit level of new participants. Given this compositional effect, we present the change in the average benefit level for an identical pool of people who are all participants under the simulated policy scenario. In this case, the average properly reflects the change experienced by all persons affected by the intervention.

In summary, when average outcomes are measured for "old" participants only at baseline and for the combined group of "old" and "new" participants under the simulation case, we have an accurate description for the two different situations, but the naive comparison of the means may result in misleading causal interpretation. To develop a better causal understanding, one needs to decompose the changes and reach causal inferences only in interpreting changes that are observed for identical populations.

Some measures are not affected by the ambiguities arising from compositional changes. In particular, changes in the aggregate level of benefits paid or in the aggregate value of the poverty gap are not affected. Nor do the ambiguities affect measures that average a given outcome for all elderly, such as the aggregate effect of policy changes on the percentage of the elderly below the poverty line.

Results

We present the effects of five policy alternatives:

- Increase the GIE from $20 to $80.
- Increase the EIE from $65 to $260.
- Increase the FBR by $50 for individuals and $75 for couples and eliminate the GIE.
- Increase the asset threshold by 50 percent, from $2,000 to $3,000 for individuals and from $3,000 to $4,500 for couples.
- Increase the asset threshold by 200 percent, from $2,000 to $6,000 for individuals and from $3,000 to $9,000 for couples.

Table 8 summarizes the effects of these alternatives on SSI program participation and average benefits for participants. Table 9 presents their effects on the poverty status of elderly SSI participants and the general elderly population. Increasing the GIE from $20 to $80 has substantial estimated positive effects on the number of participants and average federal benefit levels (see Table 8). The result is a slight reduction in the poverty rate but a large reduction in the poverty gap (see Table 9). This result is not surprising because SSI income eligibility rules reflect countable income levels that are substantially below the poverty line. Thus, although an intervention of this kind might move only a relatively small proportion of people out of poverty, the effects on the poverty gap are expected to be much larger.

The increase in the SSI earned income exclusion from $65 to $260 is estimated to have essentially no effect on participation and only a modest effect on average benefits. The reason is that earnings form only a very small fraction of income for the elderly. This simulated policy intervention has virtually no effect on poverty among the elderly.

The third option would increase the FBR by $50 for individuals and $75 for couples and eliminate the GIE. The two elements of this policy change work in opposite directions: increasing the FBR expands benefits across the board, but eliminating the GIE tightens the rules for those with positive unearned income. However, since the GIE is only $20, the FBR should clearly dominate the picture: indeed, there are net increases in participation and benefit levels. This simulated change is second to the simulated increase in the GIE in terms of positive effects on participation and average benefit levels. The reduction in the poverty rate is small, but the reduction in the poverty gap is notable.

Finally, we estimate the effects of two versions of liberalizing the SSI asset threshold—a 50 percent increase and a 200 percent increase—for both individuals and couples. The estimated effects on participation are small, and there is no discernible effect on benefit levels. Our analysis of the underlying data helps explain why the seemingly substantial liberalization of the SSI asset rules under both scenarios has such a small effect on participation: among persons who are income-eligible for SSI, the asset distribution is heavily skewed toward zero. Moreover, because the change in asset rules does not have any effect on calculated benefits among participants under the baseline conditions, it is no surprise that we do not find discernible effects on benefit levels.

The evaluation of the outcomes measured in Tables 8 and 9 would not be complete without asking the obvious question: what is the cost of the measured outcomes (benefits) of these interventions? We therefore performed some simple calculations of total program costs (federal benefit outlays) under the baseline and simulation conditions.

The calculation clearly shows that the policy interventions that have the greatest effect on the outcomes we investigate are also the most costly (see Table 10). Remarkably, increasing the GIE from $20 to $80 (greatest measured outcomes) is estimated to increase federal benefit costs by about 46 percent. At the other end of the spectrum, substantial increases in the resource limit have relatively minor costs in terms of federal outlays.

Table 8.
Effects of policy changes on SSI program participation and average benefits for participants

Policy change	Current rules	Simulated rules	Change	
			Absolute	Percent
		Number of participants [a]		
Increase GIE from $20 to $80*, [b]	1,875,453	2,256,733	381,280	20.3%
Increase EIE from $65 to $260**, [c]	1,875,453	1,884,080	8,627	4.6
Increase FBR by $50 for individuals and $75 for couples and eliminate GIE*, [d]	1,875,453	2,075,751	200,298	10.7
Increase asset threshold by 50%, from $2,000 to $3,000 for individuals and $3,000 to $4,500 for couples**, [e]	1,875,453	1,900,397	24,944	1.3
Increase asset threshold by 200%, from $2,000 to $6,000 for individuals and $3,000 to $9,000 for couples*, [f]	1,875,453	1,970,914	95,461	5.1
	Average estimated benefit among participants [g] ***(dollars)***			
Increase GIE from $20 to $80*, [b]	261.67	316.41	54.74	20.9%
Increase EIE from $65 to $260*, [c]	261.67	262.82	1.15	0.4
Increase FBR by $50 for individuals and $75 for couples and eliminate GIE*, [d]	261.67	298.88	37.21	14.2
Increase asset threshold by 50%, from $2,000 to $3,000 for individuals and $3,000 to $4,500 for couples*, [e]	261.67	261.75	0.08	0.03
Increase asset threshold by 200%, from $2,000 to $6,000 for individuals and $3,000 to $9,000 for couples*, [f]	261.67	261.75	0.08	0.03

SOURCE: The estimates are from the SSI Financial Eligibility Model, based on the 1990 Survey of Income and Program Participation (SIPP), wave 4, month 4, exactly matched with the Social Security Administration's Supplemental Security Record, Summary Earnings Record, and Numident file.

NOTES: GIE = guaranteed income exclusion; EIE = earned income exclusion; FBR = federal benefit rate.

a. The number of participants under current program rules is the number of individuals aged 65 or older receiving federal SSI payments in March 2000, based on SSA administrative records (see "Current Operating Statistics," *Social Security Bulletin* 63(2), Table 2.A2). The number of participants under the simulated program rules was derived by applying the percentage change in the number of participants if the policy change had been implemented in 1991 to the number of individuals receiving federal SSI payments in March 2000.

b. The simulation with the 1990 SIPP is based on the deflated value of the $60 assumed increase ($80–$20) in the GIE.

c. The simulation with the 1990 SIPP is based on the deflated value of the $195 assumed increase ($260–$65) in the EIE.

d. The simulation with the 1990 SIPP is based on the deflated value of the assumed increase in the FBR of $50 for individuals and $75 for couples.

e. The simulation with the 1990 SIPP is based on the deflated value of the assumed increase in the asset threshold of $1,000 for individuals ($3,000–$2,000) and $1,500 for couples ($4,500–$3,000).

f. The simulation with the 1990 SIPP is based on the deflated value of the assumed increase in the asset threshold of $4,000 for individuals ($6,000–$2,000) and $6,000 for couples ($9,000–$3,000).

g. The average benefit under current program rules is the average federal SSI payment to recipients aged 65 or older in March 2000, based on SSA administrative records (*"*Current Operating Statistics,*"* *Social Security Bulletin* 63(2), Table 2.A2).

The average benefit under the simulated program rules was derived by applying the percentage change in the average benefit if this policy change had been implemented in 1991 to the average federal SSI payment to recipients aged 65 or older in March 2000. The percentage change in the average benefit if this policy change had been implemented in 1991 is estimated from the Division of Policy Evaluation's SSI Financial Eligibility Model.

* The estimated change is statistically significant at the 1 percent level. The standard errors used in the significance tests were calculated from a first-order Taylor-series approximation to account for the complex sample design of the SIPP.

** The estimated change is statistically significant at the 5 percent level. The standard errors used in the significance tests were calculated from a first-order Taylor-series approximation to account for the complex sample design of the SIPP.

Table 9.
Effect of policy changes on poverty status

Policy change	Reduction in poverty rate (percentage points) [a]	Number moved out of poverty	Reduction in poverty gap (percent) [b]
		Effects on participants	
Increase GIE from $20 to $80[c]	1.49 *	33,625	29.0 *
Increase EIE from $65 to $260[d]	0	0	0.1 *
Increase FBR by $50 for individuals and $75 for couples and eliminate GIE[e]	0	0	19.1 *
Increase asset threshold by 50%, from $2,000 to $3,000 for individuals and $3,000 to $4,500 for couples[f]	0	0	0.8
Increase asset threshold by 200%, from $2,000 to $6,000 for individuals and $3,000 to $9,000 for couples[g]	0	0	3.0 *
		Effects on elderly population	
Increase GIE from $20 to $80[c]	0.04	. . .	7.8 *
Increase EIE from $65 to $260[d]	0 **	. . .	0.1 **
Increase FBR by $50 for individuals and $75 for couples and eliminate GIE[e]	0.06	. . .	5.1 *
Increase asset threshold by 50%, from $2,000 to $3,000 for individuals and $3,000 to $4,500 for couples[f]	0	. . .	0.2
Increase asset threshold by 200%, from $2,000 to $6,000 for individuals and $3,000 to $9,000 for couples[g]	0	. . .	0.7 *

SOURCE: The estimates are from the SSI Financial Eligibility Model, based on the 1990 Survey of Income and Program Participation (SIPP), wave 4, month 4, exactly matched with the Social Security Administration's Supplemental Security Record, Summary Earnings Record, and Numident file.

NOTES: GIE = guaranteed income exclusion; EIE = earned income exclusion; FBR = federal benefit rate; . . . = not applicable.

a. The poverty estimates are derived by comparing family income in the SIPP reference month to one-twelfth of the family-specific poverty threshold provided in the 1990 SIPP. The percentage-point reduction in the poverty rate is calculated as the difference between the poverty rate under current program rules and the poverty rate under the simulated program rules.

b. The percentage change in the poverty gap is calculated as the percentage difference between the poverty gap under current program rules and the poverty gap under the simulated program rules. The poverty gap is the difference between family income and the family-specific poverty threshold, aggregated across all individuals in the relevant group.

c. The simulation with the 1990 SIPP is based on the deflated value of the $60 assumed increase ($80–$20) in the GIE.

d. The simulation with the 1990 SIPP is based on the deflated value of the assumed $195 increase ($260–$65) in the EIE.

e. The simulation with the 1990 SIPP is based on the deflated value of the assumed increase in the FBR of $50 for individuals and $75 for couples.

f. The simulation with the 1990 SIPP is based on the deflated value of the assumed increase in the asset threshold of $1,000 for individuals ($3,000–$2,000) and $1,500 for couples ($4,500–$3,000).

g. The simulation with the 1990 SIPP is based on the deflated value of the assumed increase in the asset threshold of $4,000 for individuals ($6,000–$2,000) and $6,000 for couples ($9,000–$3,000).

* The estimated change is statistically significant at the 1 percent level.

** The estimated change is statistically significant at the 5 percent level.

Our findings suggest that, in evaluating alternative reform proposals, policymakers should systematically consider the costs and benefits in terms of highly valued outcomes.

Possible Future Directions

Future research could build upon our work in a number of promising directions. We briefly discuss some of those possibilities below.

Implementation of Model for Working-Age Disabled

Categorical eligibility (that is, disability as defined by SSA) is not directly observable for the working-age population. The modeling of their SSI participation needs to consider that as well as disability-specific factors affecting SSI participation among the disabled population. Also, some individuals may be eligible not only for SSI but also for Disability Insurance (DI). DI insured status and expected future DI benefit streams, which start after a 5-month waiting period, arguably influence the decision to apply for SSI, especially because dual eligibility implies a less uncertain future benefit stream. Finally, although concurrent SSI and DI awardees become eligible for Medicare after a 2-year waiting period, SSI-only awardees are eligible only for Medicaid, albeit from the very beginning of the spell of SSI recipiency.

Measurement of Effects on State Supplementation

Our participation model considers the effect of state supplements on the decision to participate in SSI. However, we do not measure either the effects of proposed federal policy changes on state supplements or the combined effect of federal benefits and state supplements on family or individual income. Liberalizations in federal policy might increase state outlays as participation in the federal SSI program increases, but offsetting effects may arise from the increased federal benefit levels of existing participants. If the federal policy change was substantial, states might adjust their own rules.

Program Interactions

In addition to the interaction with DI, Medicare, and Medicaid, the decision to participate in SSI may interact with other means-tested programs, such as Food Stamps, Temporary Assistance for Needy Families, and General Assistance. Some evidence suggests that changes in other means-tested programs may affect SSI participation.[16] Likewise, changes in the structure of the SSI program might affect participation in the other programs. To obtain a complete accounting of the costs and benefits of proposed changes in SSI, effects on the other programs need to be considered. Finally, although liberalizing SSI should have no effect on Social Security, which is an entitlement program, Social Security reforms may have marked effects on SSI. To account for the net effects of proposed changes in Social Security, one would need to consider interactions with SSI explicitly.

Simulations Used as Systematic Tools of Policy Analysis

Although there may be some policy justification for the SSI rule changes presented in this article, the analytic rationale—in terms of costs and benefits—is not immediately obvious. We do not know whether a lower or higher value of revised parameters would work better or

Table 10.
Total SSI program costs for participants aged 65 or older under baseline and simulated conditions

	Annual costs (billions of dollars)		Increase in federal benefits	
Policy change	Baseline	Simulation scenario	Billions of dollars	Percent
Increase GIE from $20 to $80	5.89	8.57	2.68	45.5
Increase EIE from $65 to $260	5.89	5.94	0.05	0.9
Increase FBR by $50 for individuals and $75 for couples and eliminate GIE	5.89	7.44	1.55	26.4
Increase asset threshold by 50%, from $2,000 to $3,000 for individuals and $3,000 to $4,500 for couples	5.89	5.97	0.08	1.4
Increase asset threshold by 200%, from $2,000 to $6,000 for individuals and $3,000 to $9,000 for couples	5.89	6.19	0.30	5.1

SOURCE: The estimates are from the SSI Financial Eligibility Model, based on the 1990 Survey of Income and Program Participation, wave 4, month 4, exactly matched with the Social Security Administration's Supplemental Security Record, Summary Earnings Record, and Numident file.

NOTE: GIE = general income exclusion; EIE = earned income exclusion; FBR = federal benefit rate.

worse in terms of some outcomes of interest. Moreover, our analysis has shown that the various simulated interventions are associated with widely varying costs, so in that sense they are not comparable. Finally, we do not know whether spending a given budgeted amount exclusively on changing a single parameter would be more or less effective in reaching a particular objective or objectives, or whether combining two or more interventions would be more effective. Addressing such issues could greatly enhance our understanding of the trade-offs.

Modeling the Eligibility and Participation Process

Our model is static and therefore provides no information about the process of adjusting to the simulated conditions. Presumably, this adjustment does not happen instantaneously, and substantial learning may be involved. Also, the temporal dynamics of eligibility may affect the decision to participate. For example, persons who are permanently eligible for SSI, as opposed to those whose eligibility is more variable through time, are expected to have stronger incentives to participate in SSI. Using the longitudinal aspects of SIPP and the administrative records, it is possible to model income eligibility longitudinally and to analyze the dynamic relationship between eligibility and participation.

Analyzing Characteristics of New Eligibles

Finally, there is substantial policy value to having the information needed to compare the characteristics of people who are expected to become newly eligible for SSI or to become new participants as a result of a policy change with the characteristics of current SSI participants. The simulations presented in this article provide only very limited information concerning such issues, primarily because the unweighted sample sizes are too small to allow us to make reliable comparisons of the relevant population subgroups. Obtaining such information may require merging two or more SIPP panels.

Appendix A. Sample Construction and Standard Error Estimates

The sample used in this analysis comprises respondents from the Survey of Income and Program Participants 1990 panel, Wave 4 Core, reference month 4. Additional information comes from the Wave 4 Topical Module (assets variables), Wave 3 Topical Module (health-related variables), Wave 2 Topical Module (citizenship and immigration variables), and other administrative data (the Summary Earnings Record to assess the validity of matches of survey data to administrative records, the Supplemental Security Record for program participation status, and the Master Beneficiary Record for type of Social Security benefit). The sample is divided into Supplemental Security Income units for analysis by using marital status. The wives' information is attached to the husbands' records, and only the unit head identifiers are kept. The wives' records are then removed from the sample. The remaining sample is matched with the SER and checked for a nonzero birthdate to identify valid matches between survey and administrative data. Of the remaining sample, 3,396 observations are matched to the SSR, indicating that they have applied for SSI benefits. The following summarizes the construction of the sample:

Source	Usable observations
Wave 4 Core, reference month 4	59,462
Wave 4 Topical Module merge	55,680
Wave 3 Topical Module merge	54,357
Other merges and sample restrictions	35,605
Other missing values	35,603
Divided into SSI units	28,011
Valid matches between survey and administrative data	25,614

The data for all SIPP samples follow a complex survey design, so the precision of counts, means, proportions, and ratio estimates are overstated when standard errors are calculated using techniques that assume simple random sampling. The estimated standard errors can be calculated using a linearization or replication method (Levy and Lemeshow 1999). We use a linearization method based on a Taylor-series approximation, primarily because it is relatively easy to implement using the *svy* family of commands in Stata Release 6.0. Details of this method are provided in Levy and Lemeshow (1999, Chapter 12) and in Stata Corporation (1999, 62-72). Standard errors using the linearization method are larger than standard errors calculated using standard techniques, resulting in more conservative conclusions about the statistical significance of our estimated counts, means, proportions, and ratios.

Appendix B. Analysis of Reasons for Measured Ineligibility Among SSI Participants

The consistency of our eligibility estimates based on the Survey of Income and Program Participation and the Social Security Administration's assessment of eligibility among applicants and beneficiaries is relevant in evaluating the quality of measurement in our study. Using the survey-based definition of participation, our model initially

classified 47 percent of Supplemental Security Income participants (aged and working-age disabled combined) as ineligible.[17] SSA presumably found those measured ineligibles to be eligible because they were actually participating in the Supplemental Security Income program.

There are three possible reasons for the high rate of ineligible participants. First, we may incorrectly measure participation status. Second, the SIPP data or our eligibility algorithm may produce incorrect eligibility estimates. Third, the income and assets that are reflected in the administrative records may be incorrect due to moral hazard (biased self-report) or to administrative practices. Likewise, SSA may incorrectly identify some people as medically eligible.

The replacement of the survey measure of participation with the administrative records data (FEDPMT) and the more realistic treatment of life insurance policies substantially improved the empirical fit between measured participation and estimated eligibility. However, even after these changes, almost a quarter of measured participants were estimated to be ineligible for the aged and working-age disabled combined. Therefore, we conducted further analyses of the remaining cases of ineligibles using the FEDPMT definition of SSI participation. We considered three sources of ineligibility: categorical, income, and resource. (See Table 4, which describes participants in ineligible units by type of ineligibility and age.)

According to our initial estimates, the vast majority of ineligible participants (127 of 175 unweighted cases) were nonaged. Ineligible participants constitute about 33 percent of working-age disabled participants (unweighted observations) but only 14 percent of the aged.

Categorical Ineligibility

The most important reason for ineligibility among the nonaged was categorical ineligibility. About 68 percent (87 cases) were categorically ineligible measured by the medical eligibility flag that was used in this analysis (a few of those cases were ineligible on the basis of income or asset measures as well). The measurement of categorical eligibility is not a major issue for the aged, because status as "65 years or older" can be measured with reasonable accuracy in our data set and can be assumed to be measured by field office staff with virtually no errors.

Income Ineligibility

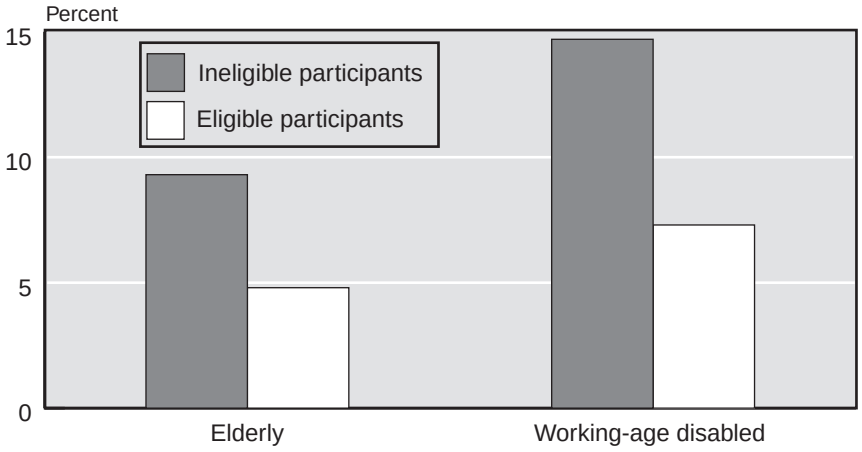
The most important reasons for measured income ineligibility among the elderly were, in order of importance:

- SIPP reporting of Social Security benefits larger than reported in the Master Beneficiary Record,
- The use of imputed income amounts in the SIPP, and
- Self-reports of income (other than Social Security or SSI) in the SIPP that are not reflected in the administrative records.

For the nonelderly, the relative frequency of these three items is the exact opposite. We note that the reporting of Social Security benefits in the SIPP that are larger than those reported in the MBR is unique to ineligible participants. For eligible nonparticipants, the SIPP-reported Social Security benefits tend to be lower than the amounts indicated in the administrative data, with a net SIPP underreporting of Social Security benefits in the overall population.[18]

Two sources of income ineligibility (inflated reporting of Social Security benefits and imputed income) are rooted in shortcomings of the SIPP. The misreporting of Social Security income can be corrected by using SSA administrative records, but the use of imputed income values in the SIPP is an inherent shortcoming that cannot be corrected in that manner unless the reason for the imputation is a missing Social Security benefit. Arguably, since SSA uses administrative records to make payments

Chart B-1.
Percentage of SSI participants with imputed income items, by measured eligibility status of elderly and working-age SSI participants



NOTES: Chart is based on unweighted counts. Participation status is measured by the Supplemental Security Record's actual payment variable (FEDPMT). Imputed status is measured on the basis of the core income fields in the Survey of Income and Program Participation.

to beneficiaries, SSA benefit amounts tend to be more reliable than SIPP self-reports, which are affected by recall and other sources of respondent error. Chart B-1 provides evidence of the relationship between SIPP imputations and simulated eligibility status for the elderly and disabled separately. For both groups, the proportion of imputed income is clearly higher among ineligible participants, suggesting that the use of imputed income in the SIPP clearly contributes to simulated ineligibility among participants. Thus, to some extent, SIPP measurement error rather than administrative failure to capture income accurately is the source of simulated ineligibility among participants.

In contrast to these two items, the third source of income ineligibility—the reporting of income (other than Social Security and SSI) in the SIPP that is not contained in administrative records—may reflect either overreporting in the survey or underreporting in the administrative records. A good case can be made for the administrative records being a source of this error if one considers both the moral hazard of underreporting other sources of income among SSI participants and the administrative difficulties of keeping the records of SSI beneficiaries current past the time of application. We find less than 5 percent of participants with this source of measured ineligibility, which is not an implausible result.

With respect to income eligibility, replacing self-reported Social Security with data from administrative records is a feasible option that we are pursuing in ongoing research (Huynh, Rupp, and Sears 2002). With respect to the other potential sources of income ineligibility, there is no obvious fix. However, for almost all cases of measured income ineligibility, we found plausible explanations other than errors in our model (such as the use of imputed values in SIPP).[19]

Resource Ineligibility

Of the two financial eligibility variables, income was a more important source of ineligibility than resources for both the aged and the disabled. In fact, the remaining 24 cases that are resource-ineligible constitute 3.3 percent of participants, and almost half (11 cases) are ineligible for other reasons as well. This finding suggests an impressively low (1.5 percent) upper bound for the measurement error attributable to resources alone.

In conclusion, with the replacement of self-reported Social Security benefit amounts with data from administrative records and the different handling of life insurance policies, the proportion of ineligible participants becomes tolerably low for the elderly, especially since our analysis positively identified the reasons for the vast majority of remaining cases of ineligibility. The situation is more complicated for the disabled, partly because of the relatively large number of categorically ineligible cases and partly because of the less tangible nature of qualifying disabilities.

Appendix C. Measurement of Maximum State SSI Supplement and Average Medicaid Benefit

In this analysis, maximum SSI state supplement numbers are taken from *State Assistance Programs for SSI Recipients*, Office of Supplemental Security Income, Division of Program Management and Analysis, Social Security Administration (1992). This document provides data on state assistance programs as of January 1992 for all states plus the District of Columbia. Because Survey of Income and Program Participation state codes combine states in sparsely populated regions, the following exceptions are made:

- Benefits for Maine and Vermont are weighted by the number of federal SSI recipients.
- For Iowa, North Dakota, and South Dakota, the values of Iowa are used since it has by far the largest population of the three states.
- For Alaska, Idaho, Montana, and Wyoming, we use the average across states.

Appendix Tables C-1, C-2, and C-3 provide additional information on the benefits for each state and combined SIPP region.

Notes

[1] The ordering of the three steps in determining eligibility facilitates the discussion but does not necessarily reflect operational steps. The outcome is invariant to sequencing.

[2] In this article we use the terms asset eligibility and resource eligibility interchangeably.

[3] This is the unweighted sample count. The weighted total is 2,017,000.

[4] The PESS rule exclusion applies to properties earning annual returns of at least 6 percent.

[5] These maximums are reduced by one-third for individuals who live in another person's household. Regulations specify that this reduction does not apply to an individual who owns or rents, buys food separately, eats meals out rather than with the household, or pays a prorated share of the household's food and shelter expenses (Social Security Administration 1992). The regulations have been interpreted quite liberally, and only about 5 percent of SSI recipients are classified as living in other people's households. We experimented with modeling living arrangements with SIPP, but we would have unrealistically assigned nearly one-third of SSI beneficiaries to other people's households. We decided that ignoring dependent living arrangements altogether was preferable to grossly overestimating them.

Table C-1.
Average state Medicaid expenditures (in dollars) and 209(b) status, 1991

State or region	All recipients	Aged	Blind	Disabled	209(b)[a]
Alabama	1,997	3,841	2,292	3,430	No
Arizona	268	499	732	628	No
Arkansas	2,417	4,788	3,807	4,205	No
California	1,886	4,251	3,748	4,158	No
Colorado	3,011	6,279	24,763	8,681	No
Connecticut	5,994	19,278	5,521	7,600	Yes
Delaware	3,671	11,355	5,588	9,328	No
District of Columbia	4,456	12,136	1,906	10,698	No
Florida	2,358	5,271	3,553	5,177	No
Georgia	2,411	5,190	3,933	5,005	No
Hawaii	2,606	7,974	8,604	5,904	Yes
Illinois	2,387	6,644	5,903	5,553	Yes
Indiana	4,003	9,743	6,371	11,062	Yes
Kansas	2,642	6,785	5,119	8,079	No
Kentucky	2,284	5,371	3,303	4,265	No
Louisiana	2,690	4,559	4,455	6,643	No
Maryland	3,565	8,829	4,845	7,218	No
Massachusetts	4,344	11,584	7,990	8,011	No
Michigan	2,283	6,926	4,302	6,401	No
Minnesota	3,702	11,089	12,270	14,440	Yes
Mississippi	1,607	3,426	2,859	3,177	No
Missouri	2,221	5,570	3,491	5,306	Yes
Nebraska	2,915	7,751	6,673	8,683	No
Nevada	3,005	5,939	5,660	8,673	No
New Hampshire	4,898	12,829	15,692	12,628	Yes
New Jersey	4,437	11,835	6,185	11,671	No
New Mexico	2,113	6,062	6,239	5,453	No
New York	5,577	17,084	23,458	10,727	No
North Carolina	2,679	5,295	7,983	6,527	Yes
Ohio	2,812	10,102	5,651	7,949	Yes
Oklahoma	2,673	4,915	2,659	6,794	Yes
Oregon	2,531	6,188	15,991	8,908	No
Pennsylvania	2,690	8,397	2,981	5,787	No
Rhode Island	4,014	8,363	5,215	8,582	No
South Carolina	2,426	4,242	2,967	5,184	No
Tennessee	2,130	4,290	2,566	4,065	No
Texas	2,043	5,036	3,836	6,206	No
Utah	2,408	6,273	5,599	9,416	No
Virginia	2,756	6,025	4,415	6,107	Yes
Washington	2,235	7,876	4,475	4,136	No

Continued

[6] Public income maintenance payments include Aid to Families with Dependent Children, General Assistance, payments under the Refugee Act of 1980, and U.S. Veterans Administration payments based on need.

[7] Although program rules would take into account children between ages 18 and 21 if they were in school, the SIPP indicator we use is for children under age 18.

[8] Pickett and Scott (1996) discuss these two payment concepts and the issue of overpayments. Panis and others (2000) discuss the FEDAMT and FEDPMT fields.

[9] Our reasoning was supported by a piece of analysis that looked at the percentage of all participants who were determined to be ineligible by our eligibility model yet were reported to be participants by one or more of the three measures. The highest proportion of ineligible participants (32.5 percent) was generated by the survey measure. The administrative records produced numbers that were close to each other, but FEDPMT produced the lower proportion (22.7 percent) compared with FEDAMT (23.8 percent). These data support the superiority of FEDPMT.

[10] However, the SER measurement of age may be less accurate than that which can be obtained from the Numident. Measuring age is less of an issue for people with SSR and MBR records. We are currently investigating the relationship between the information in the SER, Numident, and SIPP on age.

[11] Overreporting would produce error in the opposite direction, resulting in artificially inflated participation rates.

[12] The claim here is *not* that there is no evidence of underreporting of income but that there is no evidence of *substantial systematic* underreporting of income in the SIPP. The Division of Policy Evaluation in the Office of Research, Evaluation, and Statistics is conducting a fairly comprehensive analysis of possible misreporting in the SIPP. That study may result in the modification of these conclusions.

Table C-1.
Continued

State or region	All recipients	Aged	Blind	Disabled	209(b)
West Virginia	1,912	5,585	3,138	4,545	No
Wisconsin	3,537	9,037	6,323	7,474	No
Maine,Vermont	3,312	8,709	3,436	7,957	No
Iowa, North Dakota, South Dakota	3,204	6,721	3,992	9,069	No
Alaska, Idaho, Montana, Wyoming	3,006	8,797	3,984	7,489	No

SOURCE: House Committee on Ways and Means (1992).

NOTES: States and metropolitan areas with populations less than 250,000 are not identified in Survey of Income and Program Participation (SIPP) public-use files to protect the confidentiality of respondents. For the 1990 SIPP panel used in this article, state-level geography is available for 41 individual states and the District of Columbia. The nine other states are combined into three groups: Maine and Vermont; Iowa, North Dakota, and South Dakota; and Alaska, Idaho, Montana, and Wyoming.

a. Under the 209(b) option, states may impose Medicaid eligibility criteria that are more restrictive than SSI eligibility criteria. A separate Medicaid application with the state also may be required.

[13] See House Committee on Ways and Means (1998) for a description of basic Food Stamp rules and the interaction of the Food Stamp and SSI programs.

[14] Since SSI beneficiaries are categorically eligible for food stamps, some of the people who became newly eligible for SSI as a result of the SSI policy change may not have been eligible for food stamps under baseline conditions. Food Stamp benefits may therefore magnify the estimated SSI policy effect. We think that is highly unlikely, though, because the income eligibility criteria of SSI are generally stricter than those for the Food Stamp program.

[15] An important ambiguity arises from the fact that some parameters of the SSI program, such as the FBR, are indexed to inflation but others, such as income exclusions and asset thresholds, are not. Thus there is no straightforward way to represent policy changes to be implemented in a given year with data for an earlier year. We have chosen the approach described here on the basis that it produces estimates of the cost of the policy intervention in 1991 and today that are arguably equivalent.

[16] See Bound, Kossoudji, and Ricart-Moes (1998) for the effects on SSI of eliminating General Assistance in Michigan.

[17] We derived this percentage with an earlier version of our eligibility model that assumed that the face value of life insurance policies and their cash surrender value were identical.

[18] The most important likely reason is the reporting of Social Security benefits net of the Part B deduction rather than the gross benefit amount. The Social Security Administration deducts Part B premiums from the monthly benefit payable before it sends a monthly check to beneficiaries or electronically deposits benefits to their bank account. Thus the vast majority of beneficiaries who elect Part B coverage receive monthly cash benefit payments net of the Part B premium.

[19] The use of information from the longitudinal version of SIPP, where imputations are done longitudinally rather than through a cross-sectional hot deck, may be an attractive option to consider here.

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Table C-2.
Maximum SSI state supplement, by eligibility category, 1991 (in dollars)

State or region	Supplement available	Aged	Blind	Disabled	Requiring care
Alabama	Yes	0	0	0	60
Arizona	Yes [a]	0	0	0	0
Arkansas	No	0	0	0	0
California	Yes	223	297	223	0
Colorado	Yes	56	0	0	778
Connecticut	Yes	325	325	325	0
Delaware	No	0	0	0	0
District of Columbia	Yes	15	15	15	0
Florida	No	0	0	0	0
Georgia	No	0	0	0	0
Hawaii	Yes	5	5	5	0
Illinois	Yes	. . .	. . .	. . .	. . .
Indiana	No	0	0	0	0
Kansas	No	0	0	0	0
Kentucky	Yes	0	0	0	32
Louisiana	No	0	0	0	0
Maryland	No	0	0	0	0
Massachusetts	Yes	129	150	114	0
Michigan	Yes	14	14	14	0
Minnesota	Yes	81	81	81	0
Mississippi	No	0	0	0	0
Missouri	Yes	0	322	0	0
Nebraska	Yes	30	30	30	0
Nevada	Yes	36	109	0	0
New Hampshire	Yes	27	27	27	0
New Jersey	Yes	31	31	31	0
New Mexico	No	0	0	0	0
New York	Yes	86	86	86	0
North Carolina	Yes	0	146	0	0
Ohio	No	0	0	0	0
Oklahoma	Yes	64	64	64	0
Oregon	Yes	2	27	2	0
Pennsylvania	Yes	32	32	32	0
Rhode Island	Yes	67	67	67	0
South Carolina	No	0	0	0	0
Tennessee	No	0	0	0	0
Texas	No	0	0	0	0
Utah	Yes	5	5	5	0
Virginia	No	0	0	0	0
Washington	Yes	28	28	28	0

Continued

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Table C-2.
Continued

State or region	Supplement available	Aged	Blind	Disabled	Requiring care
West Virginia	No	0	0	0	0
Wisconsin	Yes	93	93	93	0
Maine, Vermont	Yes	30	30	30	0
Iowa, North Dakota, South Dakota	Yes	0	22	0	0
Alaska, Idaho, Montana, Wyoming	Yes	87	87	87	0

SOURCE: Social Security Administration (1992).

NOTES: States and metropolitan areas with populations less than 250,000 are not identified in Survey of Income and Program Participation (SIPP) public-use files to protect the confidentiality of respondents. For the 1990 SIPP panel used in this article, state-level geography is available for 41 individual states and the District of Columbia. The nine other states are combined into three groups: Maine and Vermont; Iowa, North Dakota, and South Dakota; and Alaska, Idaho, Montana, and Wyoming.

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a. Arizona provides a supplement only for SSI recipients who require housekeeping services. See Table C-3.

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Table C-3.
Maximum SSI state supplement, by selected characteristics, 1991
(in dollars)

State or region	Individuals		Couples			
	With housekeeper	With ineligible spouse	Aged	Blind	Disabled	Requiring care
Alabama	0	0	0	0	0	120
Arizona	70	0	0	0	0	0
Arkansas	0	0	0	0	0	0
California	0	0	557	762	557	0
Colorado	0	0	323	211	211	0
Connecticut	0	0	461	461	461	0
Delaware	0	0	0	0	0	0
District of Columbia	0	0	30	30	30	0
Florida	0	0	0	0	0	0
Georgia	0	0	0	0	0	0
Hawaii	0	0	9	9	9	0
Illinois	. . .	. . .	. . .	. . .	. . .	. . .
Indiana	0	0	0	0	0	0
Kansas	0	0	0	0	0	0
Kentucky	0	0	0	0	0	72
Louisiana	0	0	0	0	0	0
Maryland	0	0	0	0	0	0
Massachusetts	0	0	202	510	180	0
Michigan	0	0	21	21	21	0
Minnesota	0	0	129	129	129	0
Mississippi	0	0	0	0	0	0
Missouri	0	0	0	644	0	0
Nebraska	0	0	48	48	48	0
Nevada	0	0	74	375	0	0
New Hampshire	0	0	21	21	21	0
New Jersey	0	236	25	25	25	0
New Mexico	0	0	0	0	0	0
New York	0	0	103	103	103	0
North Carolina	0	0	0	243	0	0
Ohio	0	0	0	0	0	0
Oklahoma	0	0	128	128	128	0
Oregon	0	2	0	26	0	0
Pennsylvania	0	0	49	49	49	0
Rhode Island	0	0	125	125	125	0
South Carolina	0	0	0	0	0	0
Tennessee	0	0	0	0	0	0
Texas	0	0	0	0	0	0
Utah	0	0	11	11	11	0
Virginia	0	0	0	0	0	0
Washington	0	192	22	22	22	0
West Virginia	0	0	0	0	0	0

Continued

Table C-3.
Continued

State or region	Individuals		Couples			
	With housekeeper	With ineligible spouse	Aged	Blind	Disabled	Requiring care
Wisconsin	0	144	146	146	146	0
Maine, Vermont	0	0	50	50	50	0
Iowa, North Dakota, South Dakota	0	0	0	44	0	0
Alaska, Idaho, Montana, Wyoming	0	0	107	107	107	0

SOURCE: Social Security Administration (1992).

NOTES: States and metropolitan areas with populations less than 250,000 are not identified in Survey of Income and Program Participation (SIPP) public-use files to protect the confidentiality of respondents. For the 1990 SIPP panel used in this article, state-level geography is available for 41 individual states and the District of Columbia. The nine other states are combined into three groups: Maine and Vermont; Iowa, North Dakota, and South Dakota; and Alaska, Idaho, Montana, and Wyoming.

. . . = not available.