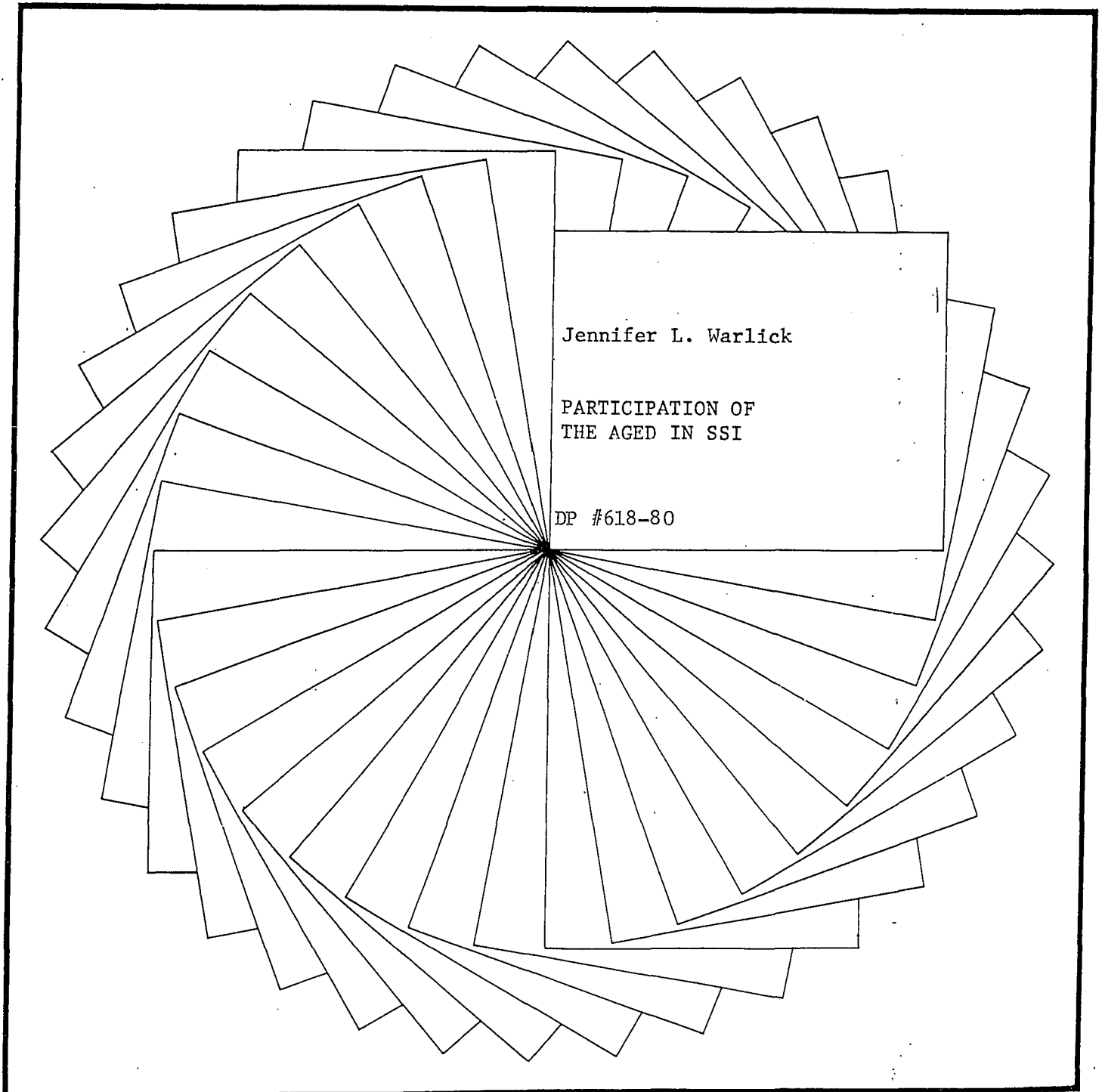




Institute for Research on Poverty

Discussion Papers



Participation of the Aged in SSI

May 1980

Jennifer L. Warlick
Department of Economics and
Institute for Research on Poverty
University of Wisconsin-Madison

Support for this research was provided by the National Institute of Mental Health, the Office of Income Security Policy, U.S. DHHS, and the Institute for Research on Poverty at the University of Wisconsin-Madison through funds granted by the Department of Health and Human Services pursuant to the provisions of the Economic Opportunity Act of 1964. The author gratefully acknowledges the helpful comments of David Betson, Thomas Gustafson, and Marilyn Moon.

ABSTRACT

The Supplemental Security Income program (SSI) is the primary escape route from poverty for a significant number of the aged poor, yet approximately 50% of all those eligible are not enrolled. Why is this so and what can be done to increase participation? This paper employs regression techniques and other statistical analysis of data from the March 1975 Current Population Survey to investigate the role of potential benefits as an incentive to participation. The analyses reveal that individual participation probabilities can be increased by raising the level of available benefits. Raised benefits need not imply an increase in the overall program participation rate, however, as some persons will be newly eligible for very small benefits which may be less than the personal costs incurred in enrolling.

INTRODUCTION

The Supplemental Security Income program is the sole escape route from poverty available to many of the aged poor. After accounting for all other income including Social Security, nearly 30% of the aged remained poor in the absence of SSI in 1974. Although less than generous by some standards,¹ SSI distributed \$2.4 billion to no fewer than 2.3 million aged persons in 1974, doubling the average income of recipients and lifting one out of five out of poverty (Warlick, 1979: 246, 253). Despite this progress in the fight against poverty, SSI's performance is disappointing relative to its potential. Although estimates of the eligible population indicate that 20% of all non-institutionalized aged persons living in the United States were eligible for SSI in 1974, only 50% of these persons received SSI benefits (U.S. DHEW, 1978a; Warlick, 1979: 207-241). SSI benefits not claimed by eligible persons totaled almost \$1.7 billion. If claimed, these payments would have removed an additional 500,000 aged persons from poverty.

Given SSI's potential for improving the economic position of the aged, the apparently low participation rate arouses great concern. Why is it that aged persons who are eligible for, and presumably in need of, cash assistance do not enroll in SSI? This study attempts to answer this question by identifying factors of empirical significance to individuals in deciding whether to participate. Factors of interest include awareness of SSI's availability, psychic costs, transportation costs, mental and physical strain of applying for SSI,

bureaucratic competence, agency discrimination, perception of need, and the benefits from participation. The unobservable nature of many of these factors and other data limitations require that the analysis focus on the relationship of certain economic and demographic variables to the individual's probability of participation; special emphasis is given to the role of the monetary benefits available to participants.

The empirical analysis yields two results of policy interest. First, when data from the 1975 March Current Population Survey are fitted to a logit probability model of the decision to participate, the probability of participation is found to be significantly and positively related to the size of the benefit entitlement. Hence, it appears that individuals' decisions to participate may be positively influenced by policies which effectively raise benefit levels (an increase in the guarantee level or a reduction in offset rates). Second, when participation rates are calculated for regular intervals of the benefit distribution, it is found that participation rates are generally higher for successively higher intervals. This result indicates that increasing participation to 100% would not imply a doubling of current costs. Further it suggests that concern over low aggregate participation rates should be moderated to the extent that a substantial proportion of nonparticipants forego small benefit amounts.

The remainder of this paper is organized as follows: The basic program features of SSI are reviewed in Section 1. Section 2 is a discussion of methodological issues surrounding the estimation of par-

ticipation probabilities. A regression model of the individual participation choice is presented in Section 3, and the data are briefly described. Results are presented in Section 4.

1. OVERVIEW OF SSI

SSI is a federal program of cash assistance to the aged, blind, and disabled enacted by Congress in 1972 and implemented in January 1974. SSI replaced the states' programs of aid to the aged (OAA), blind (AB), and disabled (APTD). Because the SSI eligibility criteria are more liberal in some states than those of its predecessors, persons not previously eligible for benefits under state aid programs (AABD) may be eligible for benefits from SSI. An individual is aged, by SSI definition, if he or she is 65 years or older. SSI definitions of disability and blindness are similar to those of the Social Security Disability Insurance program.

Prior to SSI, levels of aid and eligibility criteria varied widely from state to state. SSI established a nationally uniform benefit level which varies only by the marital status, living arrangement (own home or other's home), and income level of recipients. This basic benefit, which is administered by SSA, is wholly financed from federal general revenue funds. Table 1 shows the size of the federal monthly benefit currently available to recipients with no other income. The amount of the benefit decreases as other income rises. Not all kinds of income are counted when determining the size of the benefit. The first \$65 of monthly earnings are totally disregarded, but the benefit

Table 1

Monthly Benefit Entitlement of Persons with
No Other Countable Income, Fiscal Year 1980

Unit Type	Living Arrangement	
	Own Home	Other's Home
Individuals	\$208.20	\$139.20
Individuals with ineligible spouses	208.20	239.20
Couples	312.30	208.20

entitlement is reduced by fifty cents for each additional \$1 of earnings. Similarly, the first \$20 of any nonemployment income (e.g., Social Security) is disregarded, but nonemployment income greater than this amount offsets benefits dollar for dollar.

Eligibility for SSI is also conditioned on the value of an applicant's assets other than the home, i.e., money in savings and checking accounts, non-income-producing real property, stocks, bonds, and the value of an automobile or a life insurance policy over a specified limit. Total nonexcluded assets must not exceed \$1500 for individuals and \$2250 for couples.²

In the conversion from the AABD programs to SSI, states retained the right to supplement the basic federal SSI benefit for any or all categories of recipients. Almost all states did so for a few persons who were receiving aid from one of the AABD programs before SSI and whose incomes would have dropped under SSI. In 37 states where such state supplementation programs currently exist, new participants as well as converted ABD cases receive supplementary benefits, which range from \$8 per month for an aged or blind individual in Maine, to \$496.30 per month to a blind or disabled couple living in the home of another in Massachusetts. The highest amount paid to a noninstitutionalized aged couple (neither blind nor disabled) is \$389.90 per month in California (U.S. DHEW, 1978b).

Approximately 4.2 million persons received a federal basic SSI benefit and/or a state supplementary SSI payment in September 1979, in amounts totaling \$608 million. The majority of beneficiaries, 54%, were eligible by reason of age. Disabled and blind beneficiaries

accounted for 44% and 2% of the total beneficiary population respectively. The average monthly benefit to all was \$133; to aged beneficiaries at that time, it was \$103 (U.S. DHEW, 1979).

2. METHODOLOGICAL ISSUES

The concept of participation employed in this research is that of the conditional probability of participation (i.e., participation is conditioned on whether a filing unit is eligible for SSI). This approach necessitates prior identification (simulation) of the eligible population. (A description of the microsimulation model used to identify eligible units is contained in the Appendix.) This approach has the disadvantage of implying that eligibility is a fixed state, independent of the filing unit's decision to participate. In truth, even in the absence of program changes, a filing unit's eligibility status may fluctuate over time, reflecting voluntary changes in personal behavior such as labor force withdrawal, disposition of assets, or shifting of living arrangements. In these cases, the decision to make oneself eligible is tantamount to the decision to participate. Ignoring the endogeneity of eligibility may seriously bias predictions of the effects of altering policy parameters, inasmuch as such changes can affect eligibility as well as the conditional probability of participation (Hosek, 1979). Nevertheless, our approach is justified by the focus of our research, which does not explore the effects of alternate policy parameters, but rather seeks to explain why it is that that subgroup of the aged population who do not need to modify

their behavior in any manner to satisfy fixed eligibility criteria do not participate in SSI.

3. A MODEL OF PARTICIPATION

Previous research suggests that persons who are eligible for SSI may not participate because

- They are unaware of the program's existence (Greenston and MacRae, 1974; Wisconsin Survey Research Laboratory, 1975; Goldstein, 1976; Report of the Comptroller General, 1976; Harter, 1977; U.S. Congress, 1977).
- They know that the program exists, but do not know how to enroll or do not think that they are eligible (U.S. DHEW, 1976; Wisconsin Survey Research Laboratory, 1975; Harter, 1977).
- They incorrectly believe they will have to sign a lien on their property, or burden relatives with the responsibility of repaying benefits received from the program (features found in the previous old age assistance programs of some states) (Baldus, 1973).
- Their level of literacy is insufficient for them to obtain information about the program and/or to complete the application process successfully (Garcia, 1971; Bendick and Cantu, 1977).
- They find that transportation to the application site is unavailable or prohibitively expensive (Federal Council on Aging, 1975; MacDonald, 1977).

- They associate a stigma with welfare reciprocity and want to avoid that stigma (Brehm and Saving, 1964; Albin and Stein, 1968; Handler and Hollingsworth, 1969; Weisbrod, 1970; Welch, Stineman, and Comer, 1973; Osgood, 1977; U.S. Congress, 1977; Tissue, 1978).
- The emotional and physical strain of the application process may seem too exhausting (Radin, 1974; Federal Council on Aging, 1975; Gordon, 1975; Goldstein, 1976).
- They may be discouraged by an unsympathetic reception at the application office (Chang, 1977; U.S. Congress, 1977).
- They may be informally denied benefits incorrectly (Report of the SSI Study Group, 1976; U.S. Congress, 1977).
- They do not think that they need more income (Tissue, 1972; Federal Council on Aging, 1975).

In contrast, the participation decisions of eligible persons may be positively influenced by the potential benefits of participation:

- cash;
- automatic enrollment in the Medicaid program (27 states and the District of Columbia; U.S. DHEW, 1978b);
- positive psychic benefits derived from relieving relatives of a financial burden.

Whether an eligible filing unit chooses to participate depends upon the net benefits of doing so (Brehm and Saving, 1964; Albin and Stein, 1968; Anderson and D'Amico, 1969; Weisbrod, 1970; Bryant, 1971; Honig, 1974; Maxfield, 1976; Hall, 1976; MacDonald, 1977; Hosek, 1978). Viewed in this light, nonparticipation may be a rational decision.

Although all of the reasons for and against participation listed above are of policy interest, some of them are not easily observable (stigma, perceived need, enrollment skills), and thus direct empirical testing is difficult if not impossible. Consequently, the primary objective of this analysis is to examine the significance of potential monetary benefits to the participation decision, controlling for certain demographic characteristics.

We assume that there are numerous possible utility functions relating to SSI participation and that these functions are distributed through the population at random. It follows that the participation decision is a random variable and can be represented by

$$\Pr(P/E) = \begin{cases} 1 & \text{if } \alpha + \beta Z + \gamma X + \varepsilon > 0 \\ 0 & \text{otherwise} \end{cases}$$

where $\Pr(P/E)$ is the probability that a filing unit will participate given that it is eligible, Z is a vector of variables indicating potential benefits from participation, X is a vector of observable demographic variables, and ε is a vector of unexplained, unobserved factors influencing tastes for SSI. The logit probability model is employed to estimate this relationship. The model, specified in full, is

$$\ln\left[\frac{P}{(1-P)}\right] = b_0 +$$

$$b_1 \text{ (potential SSI benefits) } +$$

$$b_2 \text{ (dummy indicating Medicaid coverage) } +$$

$$b_3 \text{ (dummy indicating residence in a region in}$$

$$\text{which all states supplement) } +$$

b_4 (dummy indicating residence in region in
 which only some states supplement) +
 b_5 (dummy indicating sex) +
 b_6 (dummy indicating race) +
 b_7 (dummy indicating marital history) +
 b_8 (dummy indicating southern residence) +
 b_9 (dummy indicating rural residence) +
 b_{10} (dummy indicating OASI reciprocity) +
 b_{11} (age) +
 b_{12} (educational attainment),

where $\frac{P}{1-P}$ are the odds of participation given eligibility.

For the most part, this model does not make it easy to estimate the effects of hypothesized obstacles to participation. Although some of the demographic variables are likely proxies for unobserved obstacles, most frequently any single demographic variable can be construed to represent several obstacles, rendering their interpretation most ambiguous. The effect of the size of the potential SSI cash benefit can be clearly identified, however.

The logit model is estimated separately for four different types of SSI filing units: individuals living in their own homes, individuals living in the homes of others, eligible individuals with ineligible spouses living in their own homes, and couples living in their own homes. The CPS samples of individuals with ineligible spouses and of couples living in others' homes are too small to permit estimation

of the model for these groups. Similarly, because the population of individuals with ineligible spouses living independently is ambiguously small, the model is estimated for the combined samples of individuals with ineligible spouses and couples.

The model just presented is the model estimated for the sample of individuals living in their own homes. When it is estimated for the sample of individuals who live in the homes of others, it is modified by adding a variable indicating the amount of income available to other household members. When it is estimated for couples and individuals with ineligible spouses, sex and marital history variables are replaced by the age and educational attainment of the spouse. Filing units indicating some employment activity during calendar year 1974 were eliminated from the regression sample in order to avoid estimation problems of identification related to the simultaneous nature of the participation and labor force supply decisions.

Data

The empirical analysis is based on data taken from the March 1975 Current Population Survey. Each unit of observation corresponds to one of three types of SSI filing units: an individual, a couple, or an individual with an ineligible spouse. Interview units are disaggregated when necessary to form filing units. Following the SSI definitions of aged, all single individuals are at least 65 years old, and so is at least one member of each couple. Data from the household, family, and personal records of each CPS interview unit are combined in a manner meaningful

to the SSI filing unit definitions. Financial data refer to calendar year 1974.

4. THE RESULTS

Potential Benefits

Cash. Table 2 presents the estimated coefficients of the participation model by filing unit type. The dependent variable in this model is a dummy variable set equal to 1 if the eligible filing unit participated in SSI during 1974, and equal to 0 if it did not participate. The benefit entitlements are the sum of the basic federal SSI benefit and any state supplement for which the filing unit is eligible. Simulated rather than reported amounts are used for participants as well as for nonparticipants. Definitions of the remaining explanatory variables appear in Table 2.

If the cumulative costs of participation are randomly distributed across the eligible population, then the probability of participation should be a positive function of benefit entitlement which offsets these costs. This hypothesis is confirmed by the results in Table 2. The estimated coefficient of the benefit variable is statistically significantly different from zero and positively related to the probability of participation for every filing unit type. It is the only variable in the regression which is consistently statistically significant across all unit types.

Table 2

Estimated Logit Model of Participation in SSI by
Unit Type for the Eligible Nonworking Aged Population

Variable Name	Individuals		Individuals w/Ineligible Spouses	Couples	Couples and Individuals w/Ineligible Spouses
	Own Home	Other's Home			
CONSTANT	1.2707 (1.506)	-.7645 (-.581)	4.6782 (.811)	.494 (.018)	1.4745 (.776)
SEXPI	.0906 (.508)	-.7522 (-2.300)	1.1333 (1.255)	--	--
RACE	-.1877 (-1.105)	-.1867 (-.651)	1.0450 (1.479)	.4802 (1.025)	.5809 (1.548)
EVERWED	-.0080 (-.036)	.2889 (.688)	--	--	--
RURAL	.4745 (2.549)	.1776 (.632)	1.3243 (1.987)	1.1288 (2.837)	1.1233 (3.465)
SOUTH	1.0134 (3.889)	.8228 (1.879)	-.7850 (-.601)	2.2035 (2.758)	1.5563 (2.477)
SOCSEC	-.0499 (-.231)	-.6436 (-1.826)	.2059 (.184)	-.1504 (-.266)	-.1354 (-.300)
ALLSUP	.2050 (.720)	-.1549 (-.313)	-.16388 (-1.120)	1.3710 (1.548)	.7818 (1.119)
MIX	.4335 (1.789)	.7282 (1.670)	-1.3551 (-1.129)	.9581 (1.604)	.6539 (1.267)
AUTOMED	-.4507 (-2.765)	-.3038 (-1.070)	-.3939 (-.533)	.0632 (.144)	-.0839 (-.232)
BENEFIT	.0012 (9.544)	.0009 (2.680)	.0018 (2.54)	.0006 (3.090)	.0006 (3.647)
AGEPI	-.0285 (-2.957)	.0128 (.857)	-.0170 (-.292)	.0264 (.703)	.0082 (2.850)
SCHLPI	-.0812 (-4.239)	-.0582 (-1.905)	-.2609 (-2.334)	-.0347 (-.568)	-.0758 (-1.569)
OTHING	--	-.00003 (-2.314)	--	--	--
AGEP2	--	--	-.0423 (-.708)	-.0675 (-1.481)	-.0559 (-2.351)
SCHLP2	--	--	-.0582 (-.538)	-.0604 (-1.126)	-.0630 (-1.389)
Sample Size	1192	415	79	207	286
Number of SSI Participants	576(48%)	152(37%)	44(56%)	98(47%)	142(50%)
Likelihood Ratio Test	-686.846	-223.694	-39.392	-114.721	-158.672
Fitted Prob- ability at Mean Values	.51	.36	.59	.47	.50

Note: Data from March 1975 Current Population Survey. Asymptomatic t-values in parentheses.

Table 2, continued

Definitions of Variables

SEXP1	= sex of the first person in filing unit (0=male; 1=female).
RACE	= race of persons forming filing unit (0=other; 1=white).
EVERWED	= whether currently single individual was ever married (0=never; 1=once married).
RURAL	= dummy for rural vs. urban residence (0=urban; 1=rural).
SOUTH	= dummy for south vs. nonsouth residence (0=nonsouth; 1=south).
SOCSEC	= dummy for OASI reciprocity status (0=nonrecipient; 1=recipient).
ALLSUP	= dummy for residency in a state which supplements the basic federal benefit (0=no; 1=yes).
MIX	= dummy for residence in a region in which some but not all states supplement the basic federal benefit (0=no; 1=yes).
AUTOMED	= dummy for residence in a state conferring automatic Medicaid coverage to SSI participants (0=no; 1=yes).
BENEFIT	= the annual dollar amount of SSI benefits available to filing unit.
AGEP1	= age of the first person in filing unit in years.
SCHLP1	= number of years of schooling completed by first person in filing unit.
OTHINC	= the gross income of all other persons in whose home the filing unit lives, in actual dollars.
AGEP2	= age of the second person in filing unit in years.
SCHLP2	= number of years schooling completed by second person in filing unit.
PART	= dummy for participation status (0=nonparticipant; 1=participant).

Table 3 illustrates the effect of changes in the amount of the benefit entitlement on the probability of participation.³ Reading across the rows of Table 3, the probability of participation more than doubles as the amount of the benefit entitlement increases from a mere \$10 per month to the monthly maximums of \$146 and \$219 for individuals and couples. Individuals with ineligible spouses appear to be most sensitive to changes in the benefit entitlement.

The pattern of increasing probabilities at progressively higher benefit levels underlies the positive relationship between participation rates and benefit levels shown in Table 4.⁴ At higher benefit levels, the rewards from participation are more likely to outweigh any associated costs for a greater proportion of eligible persons, leading to higher participation rates.

Medicaid coverage. Under Title XVI of the Social Security Act, a state may contract with the Social Security Administration (SSA) to have SSA determine the Medicaid eligibility status of its SSI beneficiaries. SSA agrees to make these determinations only if a state's Medicaid eligibility criteria are identical to the SSI eligibility criteria. Under these restrictions, any person qualifying for SSI automatically qualifies for Medicaid as well. Thus an eligible individual can obtain both SSI and Medicaid coverage with only one application. Of the 51 state jurisdictions, 26 have entered into such contracts. The remaining states make their own Medicaid determinations; their eligibility criteria generally differ from SSI's and Medicaid eligibility is not automatically conferred on SSI recipients.

Table 3

Fitted SSI Participation Probabilities for the Eligible
Nonworking Aged Population

Unit Type	Annual Benefit Entitlement					
	\$120	\$600	\$AVG ^a	\$1200	\$1752	\$2628
Individuals:						
Own home	.28	.41	.51	.59	.74	--
Other's home	.23	.32	.36	.44	--	--
Individuals with ineligible spouses	.30	.50	.59	.75	.89	--
Couples	.30	.36	.47	.45	.53	.66

^a\$AVG = the mean value of benefits by unit type. For individuals, own and others home, \$AVG equals \$944 and \$799 respectively. \$AVG equals \$806 for individuals with ineligible spouses, and \$1340 for couples.

Note: Table entries are the fitted probabilities at the indicated benefit entitlements; all other independent variables are valued at their sample means. Data from March 1975 Current Population Survey.

Table 4

Participation Rates For the Noninstitutionalized Aged Population , Calendar Year 1974

Annual Benefit	Individuals in Own Home		Individuals in Other's Home		Individuals with Ineligible Spouses		Couples	
	Particip. Rate	% all Eligibles	Particip. Rate	% all Eligibles	Particip. Rate	% all Eligibles	Particip. Rate	% all Eligibles
\$ 1-99	16.4	6.6	11.6	7.1	27.6	6.3	8.1	4.7
100-249	19.4	9.2	20.0	13.2	24.9	7.5	26.0	9.6
250-499	27.6	19.0	27.1	19.4	29.9	22.1	30.1	12.4
500-749	41.2	11.6	29.0	14.5	60.6	16.0	32.2	10.1
750-999	55.0	18.0	20.8	6.9	46.0	16.0	36.6	9.7
1000-1249	55.7	7.9	51.7	26.7	36.6	9.7	51.0	12.7
1250-1499	37.6	4.9	34.0	5.4	67.7	5.2	37.8	8.8
1500-1749	72.0	14.1	39.0	2.4	70.0	11.0	56.9	5.3
1750-1999	52.6	2.4	-- ^a	.3	-- ^a	-- ^a	30.9	3.2
2000-2249	61.2	2.2	63.4	.3	-- ^a	-- ^a	52.8	2.0
2250-2500	46.7	2.2	52.8	3.7	0.0	2.8	50.3	3.9
over 2500	75.5	1.9	-- ^a	0.0	0.0	2.7	48.6	17.3
Total		100.0		100.0		100.0		100.0

Note: Data from March 1975 Current Population Survey.

^aNo eligible filing units in this cell.

It is generally assumed that SSI eligibles see automatic Medicaid coverage as an additional benefit of SSI participation. Thus the probability of participation should be positively related to residence in a state which confers automatic Medicaid coverage. To test this hypothesis, a dummy variable (AUTOMED) was constructed;⁵ it assumes a value of 1 if the eligible unit lives in a state with automatic Medicaid coverage, 0 otherwise.

Surprisingly, the Medicaid coverage dummy is statistically significant only for the population of individuals living in their own homes, and for this group it is negatively related to the probability of participation. This result may derive from the way AUTOMED was constructed: it does not include persons residing in regions in which some states confer automatic Medicaid coverage while others do not. Further analysis with more appropriate data is indicated.

Demographic characteristics. Demographic characteristics of significance indicated by the regression analysis include educational attainment, southern residence, age, rural residence, sex, and total household income for individuals who live in a home headed by an adult outside the filing unit.

The level of educational attainment is significantly inversely related to the probability that individuals living in their own homes and individuals with ineligible spouses will participate. To the extent that educational attainment accurately reflects the literacy levels of eligibles, this result suggests that such skills are not a dominant obstacle to participation; it raises the question of how much program knowledge is necessary for successful enrollment.

Even after controlling for variations in state supplementation and Medicaid policies as well as for such factors as rural residence, living in the South increases the probability that couples, and individuals living in their own homes, will participate. The traditional explanation of this relationship is that southerners are less likely than nonsoutherners to be deterred by stigma associated with welfare (Baldus, 1973).

Age is a significant factor for individuals in their own homes, and for both members of a couple when the samples of individuals with ineligible spouses and couples are combined. Among individuals, the probability of participation decreases with each additional year of age. This result is consistent with the hypothesis that the oldest among the aged are least likely to be aware of the program's existence and are more likely to be exhausted by the physical and mental strain of the application process. The direction of the relationship between the probability of participation and age is mixed within the combined sample of couples, where the probability of participation is positively related to the age of the head, and negatively related to the age of the spouse.⁶ Neither of the estimated age coefficients was significantly different from zero in the separate regressions run for these two types of couples.

Residence in a rural area is significantly and positively related to the probability of participation for all unit types except individuals living in the homes of others. These results contradict conventional

thought, which holds that these two variables should be inversely related, for multiple reasons:

- rural residents have less access to information regarding SSI's availability;
- rural residents are more likely to feel stigmatized by the receipt of welfare;
- monetary transportation costs to the site of application are likely to be higher for rural residents than for urban residents;
- because the distances to be traveled are greater, the physical strain of the application process for rural residents will exceed that for urban residents.

Being male increases the probability of participating in SSI among unmarried individuals who live in homes headed by another adult. Sex is not a significant determinant of participation for individuals living in their own homes or for individuals with ineligible spouses. Total household income is a second determinant with unique significance for individuals living in homes headed by another adult. The participation probabilities of such individuals fall with increasing non-SSI total household income, suggesting the possibility that unrecorded intrafamily transfers substitute for SSI.

Factors which might be expected to have a significant impact on participation but which are not significant in the regression analysis include: race, marital history, Social Security reciprocity status, and the supplementation policy of the state in which the eligible filing unit resides.

CONCLUSION

Despite extensive outreach efforts costing no less than \$25 million since 1973 (Report of the Comptroller General, 1976), participation among aged eligibles in SSI remains around 50%. Because the poor aged have little hope of increasing their incomes through employment or other independent means, this low participation rate in a federal program designed to insure minimum income has signaled alarm among administrators of SSI, public officials, and other concerned advocates for the aged (Federal Council on Aging, 1975; Report of the SSI Study Group, 1976; U.S. Congress, 1977). Why is it that such a substantial number of eligible persons are not participating, and what can be done to increase participation? This analysis has attempted to answer these questions by empirically testing the significance of potential benefits and demographic characteristics to the individual participation decision. These tests clearly show that the probability of participation is positively related to the amount of available benefits. In addition it was shown that participation rates are higher among filing units eligible for large benefit sums than among those who are eligible for marginal monthly increments to their non-SSI income. These results indicate that the low-income aged do respond to financial incentives and suggest that participation can be increased among current eligibles by increasing the size of their benefit entitlements, albeit at greater expense to the public. However, because increasing guarantee levels simultaneously raises the eligibility breakeven levels, thereby increasing the size of the eli-

gible population, the aggregate participation rate may actually fall, as the newly eligible qualify for small benefit amounts only.

A further implication of the uneven distribution of nonparticipation across benefit entitlements is that those poor aged with the greatest income needs are the most likely to be receiving financial assistance. Were it not for the fact that participation in SSI bestows categorical eligibility for Medicaid upon a significant proportion of the recipient population, this finding suggests that concern over nonparticipation should be refined to focus primarily on those eligibles who would experience a significant increase in disposable income if enrolled. If it is true that need for medical assistance is positively correlated with eligibility for large benefits, the previous qualification is unnecessary and the relevant participation rate may be substantially higher than 50%.

APPENDIX

Simulating the Eligible Population

Simulating the eligible population is a three-step procedure:

1. Data from the family and personal records of each CPS filing unit are processed by a computer model simulating the SSI income test to determine the unit's income eligibility.
2. Asset values are imputed to each filing unit and then compared to the SSI asset limitations.
3. House values are imputed to filing units owning and occupying houses and then compared to the SSI limitations.

Determination of eligibility on the basis of income is an elementary accounting task. Income is reported for each filing unit in a way which easily accommodates the SSI definitions of employment and nonemployment income. The reported sums of each of these types of income are inserted into the SSI benefit formula, which can be generally stated as

$$B = G - \frac{1}{2}[E - \$780] - [N - \$240]$$

where B = annual SSI benefit

G = benefit to filing units with no other income

E = earned income

N = nonemployment income.

The value of G varies by unit type, living arrangement, and geographical residence. If $B > 0$, the filing unit is designated income-eligible.

Simulating the asset test is more difficult. The only asset-related data available from the CPS are the total value of interests, rents, and dividends earned by real and financial assets during the past calendar year. There is no information regarding the value of non-income-producing assets. The absence of reliable household data regarding the stock value of assets is a problem commonly encountered in models simulating eligibility for public assistance programs. Many microsimulation modelers respond to this absence by assuming that interests, rents, and dividends represent a 6% return on the asset portfolio of the interview unit. The maximum amount of interest, rents, and dividends a filing unit can receive and still maintain eligibility is determined by applying the 6% rate to the upper limit on allowable assets for the particular public assistance program being analyzed. If reported interest, rents, and dividends exceed this amount, the unit is classified as program-ineligible. Note that non-income-producing assets are ignored by this procedure.

The procedure described above (dubbed the "6% rule" for convenience) is employed in this study. Its selection followed a lengthy process of testing alternative procedures that are generally more technically complex. They involve estimating regression models of the probability of asset ownership and of the value of owned assets, and then using the estimated parameters to predict asset values for each filing unit. These procedures attempt to account for non-income-producing as well as income-producing assets.

Three selection criteria were employed in the choice of the "best" imputation procedure: a Chi-square test of equality between the rela-

tive frequency distribution generated by each procedure and the distribution of assets reported for the same population in the Survey of Economic Opportunity (SEO), 1967; the resemblance of the cumulative distributions generated by each procedure to the same for the SEO; and the accuracy with which each procedure identifies current participants. The 6% rule ranked highest according to the first and third of these criteria, and ranked second under the second criterion, and was thus chosen.

In 1974, eligibility for SSI was conditioned by the value of owner-occupied housing. The maximum valued home which a filing unit could own and still qualify for SSI was \$25,000 in the contiguous United States and \$35,000 in Alaska and Hawaii. This limitation was repealed in October 1976, but because it was effective during the survey period, it is incorporated into the simulation model here. As before, the CPS does not report the value of owner-occupied housing. Consequently it is necessary to impute home values to CPS units living in their own homes. A quick and handy procedure similar to the 6% rule in the asset case is not, however, available. Instead, a multiple-stage imputation procedure in which regression models are fitted to data from the SEO and then used to predict house values is employed. The imputed values generated by this procedure are compared to the housing limitations to determine eligibility. (A more detailed discussion of each step of the eligibility simulations can be found in Warlick, 1979: 158-213.)

According to the computer simulation, 23% of the total CPS sample of 10,619 aged individuals and couples were eligible for SSI in calendar year 1974.

Despite our attempts to model eligibility in SSI accurately, there remain several potential sources of error, resulting for the most part from data deficiencies. The most important of these are the inability to identify the state residence of each filing unit, which resulted in the failure to model all state supplementation plans; and the under-reporting of all types of income and assets by the CPS respondents. Other less significant sources include the necessity of employing annual data when the SSI accounting period is a calendar quarter and when SSI benefit levels are raised in July of each year; and the failure to model all asset provisions. Because estimates of the magnitude and direction of the bias associated with each of these sources were not attempted, a conclusion about their aggregate effect is withheld. A priori, we expect that the direction of the individual biases are offsetting.

NOTES

¹For individuals and nonfarm couples, annual SSI benefit levels are below official U.S. poverty levels. In calendar year 1974, SSI annual guarantees for persons 65 years and over, as a percentage of these poverty levels were

	<u>Nonfarm</u>	<u>Farm</u>
1 person, male	70%	82%
female	71	83
2 persons, male head	84	99
	84	101

Source: U.S. Department of Commerce, 1976, 33.

²For a more detailed description of SSI eligibility criteria see the SSI Claims Manual, available in any SSA District Office; or the Handbook of Public Income Transfer Programs: 1975 (U.S. Congress, 1974).

³In a logistic model of binary choice, it is the natural logarithm of the odds that an individual will undertake a certain action, and not the probability itself, which is a linear function of the explanatory variables:

$$\ln[P_i/(1-P_i)] = X_i B,$$

where P_i is the probability that the i th individual undertakes the specific action, X_i is a vector of explanatory variables characterizing the

ith individual, and B the corresponding vector of population parameters relating each explanatory variable to the choice probability. The choice probability for the i th individual, or probability of participation in SSI, is given by

$$P_i = \frac{1}{1 + e^{-X_i \hat{B}}},$$

where \hat{B} is the vector of estimated coefficients, and P_i and X_i are defined as before. Because the probability of participation is nonlinear in the explanatory variables, the estimated coefficients cannot be correctly interpreted as marginal probability changes. Rather, they indicate the change in the value of the log of the probabilities associated with a unit change in their respective explanatory variables (Nerlove and Press, 1973). The change in the probability that the i th individual will participate brought about by a small change in the j th explanatory variable can be approximated with the following formula:

$$\hat{P}_i \approx \hat{\beta}_j \hat{P}_i (1 - \hat{P}_i) \Delta X_{ij}$$

where ΔX_{ij} is the change in the j th characteristic for the i th individual, $\hat{\beta}_j$ is the estimated coefficient, and \hat{P}_i is the probability predicted by the estimated coefficients (Westin, 1974: 2). Note that the predicted change in the choice probability will not be constant for all individuals but will depend on each individual's original choice probability as determined by his unique set of explanatory variables.

⁴The participation rates are calculated as the quotient of the number of persons who report receiving SSI benefits and the number of eligibles.

⁵The March 1975 CPS does not reveal the state residence of survey respondents who live in states for which the survey sample size is so small that the anonymity of survey respondents might be endangered if state residence were known. For such respondents only the region of residence is given. This policy required the creation of a set of three dummy variables as follows:

- (1) AUTOMED = 1, if the eligible filing unit lives in a state in which all states confer automatic Medicaid eligibility to SSI participants
= 0, otherwise
- (2) MEDMIX = 1, if the eligible filing unit lives in a state belonging to a region in which some states confer automatic Medicaid eligibility to SSI participants while other states require a second application
= 0, otherwise
- (3) NOMED = 1, the eligible filing unit lives in a state or in a region in which all states require a second application to determine eligibility for Medicaid
= 0, otherwise.

States in which SSI participation automatically entitles filing units to Medicaid coverage are: Massachusetts, New York, New Jersey, Pennsylvania, the District of Columbia, South Carolina, Georgia, Florida, Kentucky, Tennessee, Texas, and California. States which

require a second application for Medicaid eligibility determinations are: Connecticut, Ohio, Indiana, Illinois, North Carolina, Alaska, Hawaii, Washington, and Oregon.

States in mixed regions are:

<u>States Requiring Second Application</u>	<u>States with Automatic Medicaid Coverage</u>
New Hampshire	Maine
Minnesota	Vermont
North Dakota	Rhode Island
Nebraska	Iowa
Kansas	South Dakota
Missouri	Arkansas
Oklahoma	Louisiana
Idaho	Montana
Colorado	Wyoming
Utah	New Mexico
Nevada	Wisconsin
Michigan	Delaware
Maryland	West Virginia
Virginia	Alabama
Mississippi	

⁶Among individuals with ineligible spouses, the first person is the eligible individual. Among eligible couples, the first person is always male.

REFERENCES

- Peter S. Albin, and Bruno Stein. "The Constrained Demand for Public Assistance." Journal of Human Resources 3 (1968): 300-311.
- Jacqueline Anderson and Rocco D'Amico. "Use of AFDC by Eligible Families: A Predictive Model." Welfare in Review 7,6 (1969): 25-26.
- David C. Baldus. "Welfare as a Loan: An Empirical Study of the Recovery of Public Assistance Payments in the United States," Stanford Law Review 25,2 (1973): 123-250.
- Marc Bendick and Mario G. Cantu. "The Literacy of Welfare Clients." Working Paper 5902-03. Washington: The Urban Institute. 1977.
- C. T. Brehm and T. R. Saving. "The Demand for General Assistance Payments." American Economic Review 54 (1964): 1002-1018.
- W. Keith Bryant. "Participant Demand Functions for In-Kind Transfer Payments." Discussion Paper #96-71. Madison: Institute for Research on Poverty, University of Wisconsin, 1971.
- Gordon C. Chang. "The Supplemental Security Income Program: The Revolution Needs Reform." Cornell Law Review 62 (1977): 314-363.
- Federal Council on Aging. The Interrelationships of Benefit Programs for the Elderly. Washington, D.C., 1975.
- Alejandro Garcia. "The Chicano and Social Work." Social Casework 52 (1971): 274-278.

- Joel M. Goldstein. "Supplemental Security Income: Some Observations on the Federalization of Welfare." Mimeographed paper presented before the Society for Philosophy and Public Affairs. New York, December 7, 1976.
- Laura Kramer Gordon. "Bureaucratic Competence and Success in Dealing with Public Bureaucracies." Social Problems 23 (1975): 197-208.
- Peter M. Greenston and C. Duncan MacRea. "A Diffusion Analysis of Participation in the Aid to Families with Dependent Children (AFDC) Program by States." Working Paper 3606-07. Washington: The Urban Institute, 1974.
- Arden Hall. "The Determinants of Participation of Single-Headed Families in the AFDC Program." Research Memorandum 32. Palo Alto: Center for the Study of Welfare Policy, Stanford Research Institute, 1976.
- Joel F. Handler and Ellen J. Hollingsworth. "Stigma, Privacy, and Other Attitudes of Welfare Recipients." Stanford Law Review 22 (1969): 1-19.
- Mary Harter. "Outreach: Bringing the Eligible into the Federal Assistance Programs," Cornell Law Review 62 (1977): 1093-1127.
- Marjorie Honig. "AFDC Income, Recipient Rates, and Family Dissolution." Journal of Human Resources 9, 3 (1974): 303-322.
- James R. Hosek. "Family Participation in the AFDC-Unemployed Fathers Program." The Rand Corporation, R-2316-HEW, August, 1978.
- _____. "The AFDC-Unemployed Fathers Program: An Effective Basis for Welfare Reform." The Rand Corporation, N-1283-HEW, August, 1979.

- Maurice MacDonald. Food, Stamps, and Income Maintenance. New York: Academic Press, 1977.
- Myles Maxfield, Jr. "The Interaction Between Labor Supply and Participation in the Aid to Families with Dependent Children Program." Mathematica Policy Research, June 20, 1976.
- Marc Nerlove and S. James Press. "Univariate and Multivariate Log-Linear and Logistic Models." The Rand Corporation, R-1306-EDA/NIH, December, 1973.
- Mary H. Osgood. "Rural and Urban Attitudes toward Welfare." Social Work, 22 (1977): 41-47.
- Martha N. Ozawa. "SSI: Progress or Retreat?" Public Welfare 32 (1974): 33-40.
- A. Beryl Radin. "The Implementation of SSI: Guaranteed Income or Welfare?" Public Welfare 32 (1974): 7-19.
- Report of the Comptroller General of the United States. "Efforts Made to Locate and Enroll Potential Recipients of the Supplemental Security Income Program for the Aged, Blind, and Disabled." U.S. DHEW, Social Security Administration, B-164031(4), HRD-76-105, 1976.
- Report of the SSI Study Group. Prepared for the U.S. Department of Health, Education, and Welfare, Social Security Administration. January 1976.
- Thomas Tissue. "Old Age and the Perception of Poverty." Sociology and Social Research 56 (1972): 331-334.
- _____. "Response to Reciprocity under Public Assistance and SSI." Social Security Bulletin 41 (1978): 3-15.

U.S. Congress. Handbook of Public Income Transfer Programs: 1975.

Studies in Public Welfare, Paper No. 20. Joint Economic Committee, Subcommittee on Fiscal Policy. Washington, D.C.: U.S. GPO, 1974.

_____. The Supplemental Security Income Program. Report of the Staff to the Committee on Finance, U.S. Senate. 95th Congress, 1st Session. Washington, D.C.: U.S. GPO, 1977.

U.S. Department of Health, Education, and Welfare. n.d. SSI Claims Manual. Social Security Administration, Office of Program Operations, Bureau of Supplemental Security Income. Volumes available for public inspection at all Social Security District Offices.

_____. "A Study of Recipient Awareness of SSI and Comprehension of SSA Publications." Social Security Administration, Office of Information, 75-1101, January 6, 1976.

_____. "Overview of the Supplemental Security Income Program." Staff paper prepared for the 1978 Social Security Advisory Council. Social Security Administration, Office of Research and Statistics, 1978a.

_____. "Supplemental Security Income for the Aged, Blind, and Disabled: Summary of State Payment Levels, State Supplementation, and Medicaid Decisions." Social Security Administration, Bureau of Supplemental Security Income, October 1, 1978b.

_____. "Supplemental Security Income for the Aged, Blind, and Disabled: Monthly Statistics, September 1979." Social Security Administration, Office of Program Policy and Planning, 1979.

- J. L. Warlick. "An Empirical Analysis of Participation in the Supplemental Security Income Program Among Aged Eligible Persons." Unpublished Ph.D. dissertation, University of Wisconsin, Madison, Wisconsin, 1979.
- Burton A. Weisbrod. "On the Stigma Effect and the Demand for Welfare Programs: A Theoretical Note." Discussion Paper #82-70. Madison: Institute for Research on Poverty, University of Wisconsin, 1970.
- Susan Welch, Michael Stineman, and John Comer. "Where Have All the Clients Gone? An Examination of the Food Stamp Program," Public Welfare 31 (1973): 48-54.
- Richard B. Westin. "Predictions From Binary Choice Models," Journal of Econometrics 2 (1974): 1-16.
- Wisconsin Survey Research Laboratory. "Evaluating Public Information about Supplemental Security Income in Wisconsin." Prepared for the Wisconsin State Department of Health and Social Services, Division of Family Services, 1975.