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The Department of Health, Education, and Welfare (DHEW) and the Bureau of the Census are developing a Survey of Income and Program Participation (SIPP) that is to be implemented in the early 1980's. This paper presents a few findings from an initial SIPP pilot study. It focuses on the reporting of Supplemental Security Income (SSI).

The presentation is divided into four parts. In section one, we provide a brief sketch of the SSI program and touch on measurement problems which exist in regard to SSI in the Current Population Survey. Section two examines the results of the pilot test. Particular emphasis is placed on the characteristics of the reciprocity reporting errors we uncovered, but the section also includes a short description of how the test was conducted. Methods for reducing reciprocity reporting errors in future SIPP field work are presented in section three. The final section, a postscript, deals with further developments which occurred after the original presentation was delivered at the August meetings.

1. NATURE OF THE PROBLEM

SSI is the only means-tested cash income program administered directly by DHEW at the Federal level. Currently the SSI program is providing cash payments to about 4 million aged and disabled individuals at an annual rate of \$6 to \$7 billion [6:4]. Prior to 1974, public assistance for the aged and disabled was administered by State and local welfare agencies. Since January 1974, nearly all recipient payments have been administered directly by the Social Security Administration (SSA) with checks disbursed through the Treasury's regional payment centers.

At the present time, SSI is one of the least well-reported of the major Federal cash assistance

programs in the Current Population Survey (CPS), the largest recurring household survey available to DHEW for policy research. As figure 1 shows, in 1975, for example, the CPS picked up and correctly classified only 70 to 75 percent of the SSI recipients in the CPS-eligible universe and accounted for 55 to 60 percent of the aggregate supplemental security income paid out to these individuals. <sup>1/</sup> After imputation for item non-response, the CPS did a somewhat better job, accounting for perhaps 80 to 85 percent of recipients and 65 to 70 percent of aggregate SSI benefit income. Obviously, both the post- and pre-imputation performance of the March Supplement leave something to be desired.

It may be that Federalization was accompanied by a noticeable decline in the CPS's ability to pick up and correctly classify this type of public assistance. This possibility is readily illustrated below. The top row represents estimates of the proportion of aged, disabled, and blind recipients identifiable in the March 1971 CPS [4:78]. The bottom row shows estimates of the proportion of SSI recipients picked up and correctly classified in the March 1976 CPS [7]. Both estimates were made after imputation for item nonresponse. The high and low estimates for the 1971 CPS are about 15 percent above the estimates for 1976.

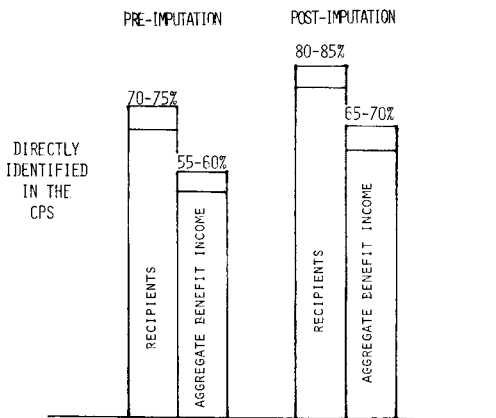
	Low Estimate	High Estimate
OAA-APTD-AB recipients		
March 1971 CPS.....	92%	100%
SSI recipients		
March 1976 CPS.....	80%	85%

2. THE PILOT TEST RESULTS

Let us turn our attention to the pilot study and its measurement of SSI reciprocity. The test was conducted in five separate cities in the fall of 1977. A probability sample of SSI recipients living in four of the five cities was obtained from program records of the Social Security Administration. <sup>2/</sup> This sample was combined with other samples drawn from AFDC case files, a sample of aged persons from SSA Medicare files, and an area probability frame. Our findings about SSI reciprocity reporting are based on the responses of the special SSI sample only. <sup>3/</sup> Interviewers were not informed about the nature of the samples. However, more than 30 percent of the total case load consisted of SSI recipients. Consequently, the interviewers in the pilot study received significantly more exposure to SSI recipients than interviewers in the typical large-scale survey that employs a national area probability sample.

Although there were somewhat more than 500 SSI cases in our sample, fewer than four hundred, or

FIGURE 1.--MEASUREMENT OF SSI RECIPIENTS AND AGGREGATE SSI BENEFIT INCOME FOR 1975, MARCH 1976 CURRENT POPULATION SURVEY



SOURCE: SEE [8] FOR BASIS OF THESE ESTIMATES.

about 70 percent, were actually located and interviewed (see [8]). This level was disappointingly low. Until we know more about the differences, if any, between the interviewed recipients and the noninterviewed/nonmatched recipients, it must be assumed that our findings may be somewhat different than if the entire sample had been contacted and had answered questions about income.

One other feature of the survey design that touches on measurement issues concerns the questionnaire. As part of an attempt to develop improved cash income questionnaires, different instruments were administered to random halves of the SSI sample. The forms differed principally in the amount of ancillary information related to receipt of various kinds of income and in the use of such information as screens for detailed questions about particular types of income. Although form differences did not appear to have any gross impact on the incidence or structure of reciprocity reporting error, an income screen on the more comprehensive form, the so-called "long form," did seem to be related to nonreporting. We will provide more details about this below.

In order to be certain about the exact nature of the reciprocity reporting errors in the survey, a case-by-case comparison was made of the survey and administrative data for SSI list frame individuals tagged as potential nonreporters in a computer check of SSI amount fields in the survey record. In the course of this review, "true" SSI nonreporters were defined as list frame individuals included on the household roster but not identified in the survey as SSI recipients. Misclassified cases were defined as list frame cases not identified as SSI recipients on the questionnaire but reporting income from some other source in the amount of their actual SSI payment.

The Site Test Experience.-- With these preliminaries out of the way, we can examine some of the most important patterns that emerge from the pilot test data. Perhaps the first question that comes to mind is the extent of the nonreporting and misreporting problem. The data below provide the answer to this question.

	Rate per 100 recipients
Reported correctly.....	86.6
Overall error rate.....	13.4
Not reported.....	3.6
Misclassified.....	9.8

We see that the reciprocity reporting error rate (misclassified plus not reported) was about 13 percent (the second row). Furthermore, since there was no nonreporting associated with item nonresponse, 13 percent reflects what the final post-imputation rate would be as well. The nonreporting rate was less than 4 percent. The misclassification rate, at a little less than 10 percent, was substantially higher than the nonreporting rate. The overall reciprocity

reporting rate, the complement of the reciprocity reporting error rate, was about 87 percent. As pointed out earlier, corresponding estimates for the CPS were 70-75 percent before imputation and 80-85 percent after imputation. Therefore, at first glance the pre-imputation reciprocity reporting rate of 87 percent for the SIPP appears impressive. However, comparisons with the CPS may be misleading because of differences in universe definitions, geographic scope, possible list frame effects on interviewer expectations, and so forth. About the only thing we can say definitely is that we would be pleased indeed if we could replicate the site test results in a national survey yielding annual income estimates.

More relevant and less ambiguous than questions of absolute "level" or "incidence" are questions of "structure." The major point to be made about the composition of reciprocity reporting errors is suggested by the substantial difference between the nonreporter and misclassification rates just mentioned, and is crucial. The SSI income amount went completely unreported on the questionnaire in only about a quarter of the "apparent" nonreporter cases. About 3/4 of the "apparent" nonreporter cases actually had SSI reported on the questionnaire as some other type of income.

Misclassification error content and its implications.-- Figure 2 focuses on the content of the misclassification errors. In other words, what income types were erroneously substituted for SSI? Clearly, social security was the dominant type. Somewhat more than 80 percent of misclassified SSI cases were reported as one of three forms of social security. In fact, 46 percent of all misclassified cases were reported as social security disability benefits. About 14 percent of the misreported SSI was confused with various forms of public assistance.

FIGURE 2.--MISCLASSIFIED CASES BY TYPE IN THE 1977 FALL SITE RESEARCH TEST

TYPE OF MISCLASSIFICATION	NUMBER	PERCENT
TOTAL.....	35	100.0
SSI REPORTED AS:		
SOCIAL SECURITY.....	29	82.9
DISABILITY.....	16	45.7
RETIREMENT.....	9	25.7
SURVIVORS.....	4	11.4
PUBLIC ASSISTANCE.....	5	14.3
GENERAL ASSISTANCE.....	3	8.6
PUBLIC AID OR OTHER.....	2	5.7
INCOME FROM THE STATE GOVT.	1	2.9

SOURCE: HAND TABULATIONS, SIPP QUESTIONNAIRES.

What can be made of this particular pattern of reciprocity reporting errors? Importantly, respondents do seem willing to tell surveyors that they are getting SSI, but a significant number simply don't report SSI according to the legislative and administrative labels that are so interesting to those who do policy research. Worse, in their confusion, many are identifying a means-tested transfer as another form of government payment that is not means-tested. This would seem to be a particularly unfortunate error to encounter in any data base used to answer policy questions about public transfers and taxes.

Actually, the relative importance of misclassification errors did not come as a particular surprise. Among those who concern themselves with SSI reporting in surveys like the CPS, confusion of SSI with regular social security (OASDI) benefits has long been thought to be a problem. This lore was partially confirmed by a 1975 survey of March CPS supplement interviewers carried out by the Bureau of the Census in collaboration with SSA. They, the March supplement interviewers, told us this misclassification was occurring [8]. Nor is misclassification a problem that is peculiar to SSI. For example, the CPS interviewers also told us that respondents had a tendency to confuse veterans' payments with military retirement, something we have reason to believe on other grounds as well. 4/ Furthermore, considering the nature of the welfare reform proposals which have been given the most serious consideration over the last ten years or so, it may be that the future will spawn more of this type of confusion. This is because an element common to all these proposals has been the Federal administration of the current AFDC program, under the aegis of the Social Security Administration, as in the present SSI approach.

### 3. REDUCING RECIPIENCY REPORTING ERRORS

If it were to prove feasible to reduce substantially or detect SSI mislabeling, we might learn how to deal with this generic class of response error problems. We will show that, in fact, the particular content of SSI misclassification errors, specifically misidentification of SSI as social security income, does raise the prospect of preventing, or detecting post hoc, most errors in the reporting of SSI reciprocity.

Differential Characteristics of Nonreporters and Misclassifiers.-- We reviewed a number of variables related to either the interview situation or recipient characteristics to determine if they were differentially associated with nonreporting and misclassification. 5/ One of the reasons for doing this was to see if we could uncover factors which we might be able to manipulate in order to improve reporting. We looked at such things as type of respondent, form type, and so forth. The only variable that turned out to have any practical significance in this regard was last month's household income. 6/ In fact, nonreporters were about 3 1/2 times more likely than misclassifiers to live in households reporting incomes of \$1,000 or more for the month

prior to the survey. The possibility of a household income effect is of particular interest because, as mentioned earlier, in the long form questionnaire sample persons in households with monthly incomes of \$1,000 or more were not taken through a special battery of questions on means-tested income types such as SSI.

Consequently, we wanted to see the effect of last month's household income separately for each of the two questionnaires. Figure 3 shows what we found: last month's income was not related to type of reporting error among short form households, but very probably was among long form households. In fact, half of the long form nonreporter cases occurred in households with monthly incomes above the level of the income screen. Based on these considerations, we no longer think it is advisable to employ an income screen when asking about SSI reciprocity.

FIGURE 3.--NONREPORTERS AND MISCLASSIFIED CASES BY LAST MONTH'S HOUSEHOLD INCOME AND FORM TYPE, 1977 FALL SITE RESEARCH TEST

RECIPIENCY REPORTING ERROR	TOTAL	(IN PERCENT)	
		LAST MONTH'S HOUSEHOLD INCOME	
		UNDER \$1,000	\$1,000 OR MORE
SHORT FORM (N)	100.0 (28)	100.0 (24)	100.0 (4)
NONREPORTERS	25.0	25.0	25.0
MISCLASSIFIED	75.0	75.0	75.0
LONG FORM (N)	100.0 (20)	100.0 (17)	100.0 (3)
NONREPORTERS	30.0	17.6	100.0
MISCLASSIFIED	70.0	82.4	0.0

SOURCE: HAND TABULATIONS, SIPP QUESTIONNAIRES.

Detecting or reducing misclassification.-- With the exception of modifying the income screening procedure, our research to date has not suggested any measures that potentially could reduce the incidence of nonreporting to any significant degree. However, it may prove possible to reduce or identify misclassification errors in the routine survey situation, especially those related to mislabeling SSI as OASDI benefits.

The most promising approach to preventing or detecting misclassification of SSI as OASDI may be to make use of the distinct color of the U.S. Treasury checks associated with the two income sources. SSI checks are gold colored. OASDI checks are green. 7/ Beginning in the April 1978 interview of the SIPP national pilot test, all respondents who indicated that a sample individual received OASDI income were handed a flash card with swatches of the green OASDI and gold SSI check colors placed side-by-side. Then the respondents were asked to indicate which of the two colors more closely resembled the color of the sample person's check. 8/ If the respondents for the false positive OASDI recipients recognize and correctly report "gold" as the check color, and, most importantly, if the check color of actual OASDI recipients is also identified correctly, it should be possible to make significant inroads in the SSI misclassification problem.

In conducting our case-by-case reviews, we discovered that Medicare coverage responses might also be useful for after-the-fact "flagging" of recipients whose SSI benefits were misreported as social security disability income. The potential usefulness of the Medicare coverage information stems from the fact that actual social security disability recipients are automatically covered by Medicare beginning two years after their initial payment. On the other hand, with the exception of SSI recipients eligible to get both social security benefits and SSI, SSI recipients under age 65 are never covered by Medicare. After eliminating a few cases to take these program characteristics into account, it turns out that about one-fifth of all misreported cases could have been flagged as probable SSI recipients based on the report of social security disability benefits without accompanying Medicare coverage.

The combined reach of check color and Medicare coverage items as misclassification flags is suggested by the data below. Fully 4/5 of the misclassification cases would be subject to the check color flag and about a fifth of the total would be subject to both the check color and Medicare flags.

	Percent
Total misclassification errors.....	100
Potentially covered.....	83
Check color flag.....	83
Check color or Medicare flag.....	23
Not potentially covered.....	17

Of course the ultimate utility of such ancillary information as misclassification indicators depends on the validity with which these characteristics are reported by true social security beneficiaries as well as by actual SSI recipients. Consequently, the data above portray the potential reach of these items under optimal conditions.

A look to the future.-- I would like to conclude this discussion of SSI reciprocity reporting errors by having you imagine with me what the error rates might have been if the site research sample had been interviewed using the more comprehensive form stripped of the income screen, and if the misclassification flags were to work perfectly.

Figure 4 displays this hypothetical or imaginary look at what might have been (or conversely what could be in the future), and compares it to what actually happened with the Fall site research sample. While it would be naive to think that all the "if's" just mentioned could be completely brushed aside in a real world setting, the picture presented by this imaginary outcome is quite encouraging. For, as you can see, in this "best of possible worlds," error rates would be appreciably lower: the misclassification rate

FIGURE 4.--ACTUAL RECIPIENCY REPORTING ERROR RATES AND LOWEST POSSIBLE RECIPIENCY REPORTING ERROR RATES USING A REDESIGNED QUESTIONNAIRE

DESCRIPTION	ACTUAL	REDESIGNED QUESTIONNAIRE
OVERALL ERROR RATE.....	13.4	3.4
NONREPORTING RATE.....	3.6	1.7
MISCLASSIFICATION RATE...	9.8	1.7
OVERALL RECIPIENT IDENTIFICATION RATE.....	86.6	96.6

SOURCE: THE ESTIMATED NONREPORTING RATE IS BASED ON THE ACTUAL LONG FORM NONREPORTING RATE ASSUMING NO HOUSEHOLD INCOME EFFECT; THE ESTIMATED MISCLASSIFICATION RATE IS BASED ON THE MAXIMUM POTENTIAL OF THE MISCLASSIFICATION FLAGS AS DISCUSSED IN SECTION 3 OF THE PAPER.

would be reduced by 83 percent, the nonreporting rate by 53 percent and the overall reciprocity reporting error rate by 75 percent. These improvements would boost the overall recipient identification rate to nearly 97 percent. Since we intend to implement and evaluate the elements which might permit us to move toward this goal, in the future we will be able to report on what success we have had in moving the real world into this preferable realm of the imagination.

#### 4. POSTSCRIPT

Since this paper represents a report on research in progress, readers may be interested in developments which took place after the presentation was prepared and delivered. The first has to do with an additional potential misclassification flag, and the second with preliminary results from the initial interview of SSI list frame cases in the 1978 SIPP National Pilot Panel. Shortly after returning to Washington I received a call from Joyce Schaul, who had attended the session in San Diego, but had not had the chance to talk to me during the meetings. I was very interested in her comments because she is a Branch Manager in a local Social Security office in the Washington, D.C. area and has contact with both regular social security recipients and SSI beneficiaries on a day-to-day basis. After we talked about the check color and Medicare misclassification flags for a few minutes, I asked her if she knew of any other unique attributes of the two programs which would have high saliency for the recipient. Mrs. Schaul quickly offered that SSI checks and social security checks are received on different days of the month (SSI on the first and social security on the third). <sup>9/</sup> In her experience recipients were very aware of the date that their payment arrived in the mail or was deposited in the bank. I found this a fascinating suggestion, all the more so since we were in the midst of preparing the questionnaires for the initial interviewing in the 1979 panel at the time of her call. Consequently,

we adopted her idea and now all putative social security recipients will be asked whether their payment usually comes on the 1st or the 3rd of the month. It is indeed a little ironic that working only a few miles apart for the same organization, we both had to travel all the way to San Diego to exchange this bit of very valuable information.

The second interesting development was the arrival of preliminary results from the April 1978 interviews with SSI recipients drawn from program records for the 1978 panel. The preliminary data indicate that for 93 percent of the list frame cases interviewed, SSI reciprocity was reported on the questionnaire. This represents, in itself, an improvement in both a statistical and practical sense over the site test reciprocity reporting rate of approximately 87 percent. 10/ The overall reciprocity reporting rate for the April 1978 test rose to about 3/5 the level predicted under ideal conditions at the time of the presentation in San Diego. Furthermore, the final rate may climb somewhat higher after check color and Medicare coverage information is brought to bear on misclassified cases. 11/

Of course, we would like to believe that elimination of the income screen and use of the check color flag were responsible for the higher reciprocity identification rates in April. Unfortunately, however, we can not be confident this is the case, since interviewers were given the names of the SSI recipients prior to the interview. For area frame cases, on the other hand, the interviewers were given only street addresses. While they were not told that the named individuals were SSI recipients, we can not rule out the possibility that, before interviewing was over, at least some of the interviewers detected that the named individuals were invariably SSI recipients. If so, the improvement in reciprocity reporting evident in the April 1978 interview might be as much an effect of interviewer expectations as our improved questionnaire techniques. Consequently, in 1979 we will be fielding a disguised SSI sample in an attempt to reduce interviewer expectation effects to a minimum. Until then we will not be able to assess with certainty the "true" effects of our field techniques.

#### ACKNOWLEDGEMENTS

John Coder, Angela Feldman, and Chuck Nelson of the Income Branch, Population Division, Bureau of the Census, did much of the initial work to develop the data base used in this paper. They also undertook a number of preliminary analyses of SSI reporting which were very helpful. Ron Tucker, also of the Bureau, obtained and called to my attention the preliminary results from the 1978 test. I would also like to thank Buzz Goldstein, Dorothy Projector, Joyce Schaul, Fritz Scheuren and Jack Schmulowitz of the Social Security Administration for their suggestions and assistance.

- 1/ The Bureau of the Census regularly publishes information comparing CPS and benchmark aggregates for selected income types, including SSI. See for example, [2:277]. The figures cited in this paper are estimates based in part on SSI micro-level program records [7].
- 2/ The sample was stratified by age, race and homeowner status and drawn systematically with equal sampling ratios across strata. Adults with representative payees and institutionalized recipients were excluded from the selection universe. See [8] for details on the differences between the study universe and the total population of SSI recipients in the test cities.
- 3/ Because our SSI recipient universe is restricted to the sample of actual beneficiaries, it is not possible to systematically uncover actual non-recipients who were incorrectly identified as SSI recipients in the survey. However, errors associated with false positive reporting are likely to be very small in comparison to the errors of misclassification and outright nonreporting. Of course, a sample of actual recipients is especially useful for looking at these last two types of reciprocity reporting problems, that is, misclassification and nonreporting.
- 4/ Of the four-fifths of the March CPS interviewers who indicated that they had interviewed persons reporting military retirement or veterans payments, 24 percent observed respondents who could not tell the difference between the two. More direct evidence of this confusion in recent years in the CPS is presented in [5]. Additional findings from the 1975 interviewer study are reported in [1].
- 5/ Our analysis here was restricted to looking at the possible differential effects that these variables might have in relation to nonreporting and misclassification. It is quite possible that while a number of these variables did not seem to be differentially associated with type of reciprocity reporting error, they might be related to the occurrence of reciprocity reporting errors per se. For example, proxy response might be no more common among misclassifiers than nonreporters, but might still be a much more frequent element in interviews in which either type of reciprocity reporting error occurred than in interviews in which reciprocity was reported correctly.
- 6/ In addition to last month's household income, nine other variables were also reviewed: form type, interview month, type of respondent, use of a translator,

recipient type, true social security reciprocity status, conversion status and SSI payment level. Using the chi-square test, only the last three were statistically significant at alpha levels of less than (.1). Probabilities for rejecting the null hypothesis of no difference in the distribution of nonreporters and misclassifiers for the other six variables ranged between (.76) and (.96).

#### REFERENCES

- 7/ The social security and SSI questions on the CPS March Supplement contain the parenthetical expressions (green-colored check) and (gold-colored check). Interviewer instructions also call attention to the possible confusion between the two sources and point out check color as a means of clearing up such confusion. (See for example, [3:51-53].)
- 8/ Thus the procedure advocated for the SIPP differs from that employed heretofore in the CPS in two ways. First, the respondents are asked explicitly about check color, and, second, they are asked to respond in terms of a visual as well as a verbal stimulus, instead of simply on the basis of verbal categories.
- 9/ However, if the 3rd falls on a Sunday, the check is received on the preceding Friday.
- 10/ Using the chi-square test, the difference in reciprocity reporting distributions is significant at the (.01) level (d.f. = 1, chi-square = 7.28).
- 11/ Our field observations suggest that the interviewers often used the check color device at the point in the interview when social security reciprocity was initially reported in order to avoid misclassification errors altogether. Consequently, the questionnaire itself may provide little direct evidence of the beneficial effect of the check color probe.

- [1] Bailer, B., Bailey, L., and Stevens, J., Measures of interviewer bias and variance, Journal of Marketing Research, vol. 14, 337-343, 1977.
- [2] Bureau of the Census, Money income in 1975 of families and persons in the United States, Current Population Reports, Series P-60, No. 105, U. S. Government Printing Office, 1977.
- [3] \_\_\_\_\_, March 1975 CPS interviewer's instruction, Section I, CPS interviewer's memorandum No. 75-3, 1975.
- [4] Projector, D. S., and Murray, E., Eligibility for welfare and participation rates, 1970, Studies in Income Distribution, Number 7, Washington, D.C., Social Security Administration, July 1978.
- [5] Projector, D. S., and Johnston, M. P., "Transfer payments and the distribution of income in the seventies," Studies in Income Distribution, forthcoming.
- [6] Social Security Administration, Monthly Benefit Statistics, No. 8, HEW Pub. No. (SSA) 78-11703, August 1978.
- [7] Vaughan, D. R., Working notes on Supplemental Security Income recipient and benefit income controls for the March 1976 Current Population Survey, May 1978 (unpublished).
- [8] \_\_\_\_\_, Tabular Appendix, Errors in reporting Supplemental Security Income reciprocity in a pilot household survey, September 1978 (unpublished).