

Differential Reporting of Food Stamps and AFDC: Explanations and Conjectures

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1. Introduction

Historically, receiving income from welfare programs is underreported in major surveys of United States households (Moore, Stinson, and Welniak 1999). Identifying persons who give false negative reports and analyzing the causes of underreporting receipt of cash welfare payments has seldom been undertaken (David 1961, Marquis and Moore 1990). Despite limited evidence, *stigma* and sensitivity to answering questions about these sources of income are routinely cited as the reasons for underreporting.

We contrast underreporting of food stamps and Aid to Families with Dependent Children. We confirm our hypothesis that some individuals are cooperative and will provide truthful information while others fail to offer truthful reports (Bollinger and David 2000a). We identify a single latent variable that is associated with underreporting for both programs. The extent of differential reporting for the two programs appears consistent with structural features of program administration.

The analysis relates two strands in the literature on welfare. One asserts that use of welfare programs generates *stigma* and unwillingness to answer questions truthfully. The community identifies participants in welfare programs, ostracizes the participant, and reduces participants' self-esteem. Evidence of stigmatization and perceptions of stigmatization have not been collected in large household economic surveys. So the stigma hypothesis can not be directly tested. Instead, models of AFDC participation incorporate a nuisance variable. Moffitt (1983) pioneered this specification. He models the joint decision to participate in AFDC and to work for pay.

The second strand in the literature concerns the cognitive problem of answering questions posed in a survey. Cognitive analysis suggests multiple causes for underreporting. Answering questions has been factored into a chain of mental activity – encoding, comprehension, retrieval, judgement (or estimation), and response (Eisenhower, Mathiowetz, and

Morganstein 1991, 113-144). In the second to fourth stages, a respondent is seeking ways to comprehend the request and develop a response. At the last stage, some information is available to the respondent, and she may willfully conceal it.

Misunderstanding the question asked, memory failures, and inadequate schema for guessing at the correct response appear to be unrelated to stigma. If information is not available to the respondent or respondents report about something different than the survey designer intended, false negative answers are induced, but the respondent may be exerting great mental effort to cooperate. Thus, a portion of response error can be ascribed to design failures in the method of eliciting data rather than uncooperativeness. At the response stage the respondent weighs the balance of being uncooperative against perceived loss of esteem or explicit penalties that might follow from revealing the truth. Stigma is most likely to influence this last stage in formulating a response.

Decomposition of the answering process into cognitive steps creates a framework for engineering and testing the design of surveys. Design can alter failure rates at every stage of the answering process. Improving respondents' capacity to deal with stages two to four of the question-answering process achieves greater availability of requested information to respondents and reduces the extent of false negative answers for all respondents.

Survey design also affects respondents' propensity to report truthfully about sensitive domains. Altering a respondent's predisposition to withhold information by survey design is more difficult and domain specific than improving information availability. Nonetheless, mode of data collection, confidentiality of respondent information and integrity of survey organizations have convinced many respondents to divulge information that is potentially extremely damaging (Sudman and Bradburn 1974; Shum and Rips 1999).

2. Differential response error

AFDC and the Food Stamp programs differ in administration, and we believe those differences imply differences in the willingness to report participation in the two programs. Revealing program participation may threaten the respondent directly.

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Table 1: Sources of sensitivity and threat

Respondent information revealed			Impact		Threat level
To	Attribute	Consequence	AFDC	FS	AFDC > FS?
Public	Status	stigma	high	low	yes
Administrators	R'd AFDC+FS	benefit reduction	null	low	no
	Earnings	benefit reduction	high	low	yes
	Other welfare	benefit reduction	null	low	no
	Child support	reported	high	low	yes

Revealing other information may threaten the respondent because information supplied to administrators is incorrect or incomplete. Consider three types of threat. 1. Program status is broadcast, the respondent's use becomes known to peers, and the respondent loses self-esteem and status. 2. Income details are communicated to enforcers and the respondent's program benefits decline. 3. Substance abuse and child neglect are communicated to enforcers and the parent loses parental rights and program eligibility.

AFDC and Food Stamp programs differ in the extent to which these threats cause problems. Imagine a respondent who prefers that her program use remain anonymous. What threat or socially undesirable outcome follows from truthful answers? Table 1 contrasts clearly different outcomes for the two programs, if survey information were public knowledge. Food Stamp use in local stores means that many in the community are already aware of program use, and truthful reporting can not have much impact on stigma or self-esteem; in contrast AFDC assistance may not be known. Therefore, the threat of revealing the fact of program participation is potentially induces more stigma for AFDC than FS. In the first row of Table 1, we hypothesize that loss of self-esteem and stigma are greater for AFDC than FS. Public opinion polls provide indirect support for this hypothesis. Polls reveal that the public supports FS to a greater extent than FS. One hypothesis is that the public believes that food stamp payments must be used for nutrition and that AFDC encourages shirking of gainful employment.

The remaining rows of Table 1 indicate consequences of releasing information to administrators and enforcers. In row 2 we see that the fact of using both programs causes no loss to AFDC (when FS was not reported on the AFDC application). If AFDC participation is reported to FS administrators, the consequence is a loss of \$0.30 of FS per dollar of unreported AFDC benefit. Row 3 of Table 1 shows earnings reported to administrators reduce AFDC more than FS. Should earnings revealed

in the survey become known to administrators, the effect of evading earnings reporting is more severe for AFDC, where benefit reduction rates in 1984 were twice the benefit reduction rates for FS. If child support is reported, the reduction in benefits is again larger for AFDC. The threat of removing children from negligent parents also impacts AFDC more heavily than FS, as AFDC requires children under 18 in the home.

Cognitive problems in answering questions about AFDC and food stamps also suggest more complete reporting for food stamps. The chits or debit cards that subsidize food purchases are handled frequently and are unique to the program. AFDC payments are typically made by check, once a month. AFDC payments are immediately commingled with other funds. Recall of payment may present problems for persons who keep no records and live a hand-to-mouth existence.

Potential exists to confuse AFDC with other cash programs. Recipients typically receive general assistance during the period before eligibility for monthly Federal programs has been established. Checks may not carry clear identification of the source of payment.

The questionnaire structure and context of questions about AFDC and food stamps in the 1984 SIPP would appear to make it easier to respond correctly for Food Stamps. A single question is asked of every adult and provides check boxes for "Yes/No" responses. The main cognitive hurdle in the question is the expression "Was <person> authorized to receive food stamps ...?". AFDC is elicited through two questions that appear after the food stamps question. The first asks "...did <person> receive any welfare, such as AFDC, WIC, or General Assistance ...?" The follow-up question asks the respondent to choose among these options and additional programs that are mentioned by name.

As AFDC appears first in both questions it appears that the cognitive burden is only slightly larger than for food stamps, but the respondent may have real problems trying to understand the equivalence

Table 2: Response errors for AFDC and Food Stamps; Wave 1, screening questions

A. SIPP Screener Question AFDC			
Administrative Record:	Reported NO AFDC	Reported AFDC	row total
Non-participant	2573	8	2581
Received AFDC	49	55	104
Total A	2622	63	2685
B. SIPP Screener Food Stamps			
Administrative Record:	Reported NO FS	Reported FS	row total
Non-Participant	2468	7	2475
Received Food Stamps	29	180	209
Total B	2497	187	2685

Table 3: Joint probability of errors in FS and AFDC reports Wave 1, screening questions

Food Stamps	AFDC			
	No AFDC Receipt or Report	Error in AFDC (omission or commission)	AFDC receipt correctly reported	Row total
No FS Receipt	2447	13	9	2469
Error in FS	26	10*	0	36
Correct FS receipt	100	34	46	180
Column total	2573	57	55	2685

* 7 of 10 were errors of omission for both programs

between “welfare” and named programs. Lastly, the respondent must deal with five named options and the open-ended response that is to cover all else. This analysis suggests a possible, but not large increase in errors of omission for AFDC over the levels for food stamps.

We conjecture that most of the excess in omission of AFDC reports over food stamp reports can be attributed to sensitivity, rather than design of the question sequences.

3. Data

The data used are described in Bollinger and David (2000a). Individual records are aggregated into a household record. While the household is the appropriate unit for analysis of food stamps, households are less compelling for AFDC. Some cases consist of a woman who lives with parents and cares for her own children. The parents may not qualify for AFDC. By aggregating to the household we reduce measurement errors. If *any* respondent reports that AFDC is received in the household, no omission error occurs. (At the household level marginal rates of response error are similar to the individual rates of error reported by Marquis and Moore 1990.) Using households to determine omission errors makes the analysis unit identical for both programs, facilitating comparison of AFDC and food stamps.

4. Probabilities of error

Panel A of table 2 tabulates household responses to the screening questions at the first interview against the comparable indicator obtained from administrative records for AFDC. The rows classify administrative records; the columns classify households interviewed. 2581 households did not participate in AFDC during the reference period for wave 1. 104 households participated in AFDC sometime during the reference period. Only 55, or 52.9%, reported participation. Errors of omission are a significant problem in the measurement of AFDC program participation. Errors of commission (reporting participation when it did not occur) are rare: 8/2581 households gives a commission error rate of 0.3 %.*

Panel B of Table 2 presents the comparable error tabulation for food stamps: 209 households participate in Food Stamps. 180/209 or 86.1% correctly report participation. The fact that the omission error rate for AFDC is more than 3 times as high as for Food Stamps is remarkable. The higher rates of omission for AFDC has many plausible causes. We have already explained that food stamps are more salient. We also noted the difference in public sup-

* We focus on errors of omission because reliable parameters of a model of commission can not be estimated from the available data.

port for the two programs, implying greater stigma for AFDC. (The rate of errors of commission for both programs is the same: 0.282% for Food Stamps and 0.310% for AFDC.)

Table 3 presents the joint response behavior between food stamps and AFDC. 46 households correctly reported being on AFDC and FS. *All* households who correctly reported AFDC correctly reported their FS status. This finding is consistent with stigma. If the psychological costs of admitting AFDC are less than the psychological rewards for “truth telling” and if psychological cost of reporting FS is less than AFDC, then you will report both AFDC and FS. In contrast, only a marginal (albeit statistically significant*) improvement in AFDC reporting occurs when FS is correctly reported. 77 households who receive AFDC correctly report participating in Food Stamps; only 46 (or 59.7%) of them report AFDC participation. Clearly, there is a positive relationship between response error in both programs, but the relationship is markedly asymmetric.

Repeated measures emphasize the asymmetry of omission errors. 73 of the 84 persons who received both AFDC and FS in the first reference period also received assistance from both programs in the second. The modal group (45%) reports all four instances of program use. The second most common response pattern reports FS twice and denies AFDC use twice (33%). Denial of both programs is uncommon. The asymmetry of reporting one program again suggests sensitivity to revealing AFDC program use.

5. Predictive Models of Response Error

Bollinger and David (1996, 2000a, 2000b) use probits to model response error in food stamp participation reports. Those estimates show that earnings and household demographic structure are important predictors of omission errors. Extending the model to AFDC is enlightening. Table 4 presents bivariate probit analyses of households receiving both programs and descriptive statistics for the variables used in the analysis. The bivariate probit model estimates correlation between the error processes that lead to omission errors for both FS and AFDC. Probit model A conforms to our prior work on food stamps. Earnings are a significant regressor for FS.

*Testing the difference between the two proportions, leads to a test statistic = $(0.0686)/0.0299 = 2.29$. The numerator is the difference in the proportions, the denominator is the standard error. This statistic rejects the null hypothesis that the two proportions are equal in population at conventional levels of the test.

Demographic characteristics for the household are not significant as they were when FS were modeled on the larger population that includes persons who do not receive AFDC (model C, discussion below).

The most startling finding in Table 4 is the correlation between the error process for AFDC and FS omissions. Effectively, the correlation is unity. We doubted the computational procedure that led to this finding and produced model B as a check. That probit fits a constant omission rate for AFDC and in FS. The correlation coefficient reflects the fact that all households that reveal AFDC report both programs. Only households that omit an AFDC report can omit a FS report. As the level of FS omissions is low, and AFDC omissions is high, the correlation is largely a reflection of the difference in marginal error rates for the two programs. We note that model B shows $\rho = 0.94$, which is significantly increased by the covariates introduced in model A.

The differences in coefficient vectors for households participating in both programs and all households in each of the programs is not significant*. The parameter vectors for all households on FS (model C) is estimated on twice as many households. The absence of significant differences in the coefficients is assuring about the stability of the model over the population.

6. Conclusions

These results strongly suggest that stigma explains some omissions of AFDC participation. Positive correlation between response error in Food Stamps and in AFDC supports the cooperator hypothesis forwarded by Bollinger and David (2000a). Finally the results confirm that multivariate analysis of program reporting will yield results that can not be inferred from the analysis of one program at a time.

These findings contain lessons for Census survey designers. Survey changes designed to reduce recall errors will have little impact. Rather, design focus should be on survey instruments that improve the individual’s perception of privacy. Although Census data is secure and affords participants high privacy protection, the respondents have little tangible demonstration of that fact.

Validation of large data sets is a critical scientific activity. Severe underreporting of AFDC implies that researchers who have used the SIPP to estimate models of AFDC participation are likely to

* Chi-squared tests are as follows:
Food stamps: $\chi^2 = 4.87, Pr = 0.30$.
AFDC: $\chi^2 = 6.64, Pr = 0.155$.

Table 4: Bivariate probit on omission of Food Stamp and AFDC, wave 1

Variable	Mean	\hat{s}	\hat{b}	A		B		C	
				s_b	\hat{b}	s_b	\hat{b}	s_b	
AFDC	0.45	0.50							
Constant	–	–	0.39	0.58	-0.12	0.14	–		
Earnings (000's)	0.30	0.55	0.039	0.31			–		
HH Size	3.98	1.67	-0.038 ^b	0.10			–		
Single female	0.57	0.50	-0.58 ^a	0.36			–		
Single male	0.11	0.31	-0.44	0.62			–		
FS	0.083	0.28							
Constant	–	–	-1.14	1.34	-1.39 ^b	0.20	-1.008 ^b	0.381	
Earnings (000's)	*		1.39 ^b	0.41			0.8 ^b	0.192	
HH Size	*		-0.26	0.29			-0.166 ^c	0.084	
Single female	*		-0.47	0.42			-0.195 ^b	0.308	
Single male	*		0.53	0.69			0.612 ^a	0.345	
$\rho_{AFDC \cap FS}$			~1.0 ^b	0.0011	0.94 ^b	0.020	–	–	
LnL/N				-0.756		-0.905		-0.329	
N				84				209	
* Same as for AFDC			^a Significant at 10% level						
			^c Significant at 5% level						
			^b Significant at 1% level						

have severe bias in their estimates. The approach taken by Bollinger and David (1997, 2000a) adjusts estimates for omission bias. The same technique can be used with results in Table 4 to correct for AFDC and FS omission errors simultaneously.

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