Child Care Data in the Survey of Income and Program Participation (SIPP)

Inaccuracies and Corrections

EXCERPT

A-2. The SIPP's General Problems

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A-2. The SIPP's General Problems

Besides the foregoing problems specific to its child care module, the SIPP has more generalized problems that also work to undermine/reduce the accuracy of its child care data. These include biased measurement error, a large proportion of proxy respondents, a biased sample, undercoverage, high nonresponse or attrition rates, and certain weighting and imputation.

Measurement error. *Although there are no estimates of the extent, the SIPP likely suffers from substantial measurement errors as a result of response errors caused by misinterpreted questions, memory lapse, or deliberate misstatements (as well as proxy response and weaknesses in the questionnaire, discussed elsewhere in this report).*

The Census Bureau attributes measurement error in the SIPP's data primarily to response errors. Response errors occur when respondents misunderstand a question, do not know the answer, have a memory lapse, or give inaccurate answers.[283] The Census Bureau has performed limited research on measurement error in the SIPP, but has extensively analyzed measurement error in the Current Population Survey (CPS).

According to the Census Bureau, respondents may give wrong answers because they have misunderstood questions. For example, in both the CPS and the SIPP, the total amount of benefits received from the Aid to Families with Dependent Children (AFDC) program has consistently been underreported. The Census Bureau has attributed part of the problem in the CPS to respondents who confused AFDC benefits with the other sources of welfare payments, mainly General Assistance.[284]

The structure of the question and its context can sometimes generate erroneous responses. For example, two SIPP modules, the child care module and the children's well-being module, ask if children are in before- and after-school activities. Among six- to fourteen-year-olds, the child care module (Wave 4 of the 2001 SIPP Panel) found only about 8 percent of children in extracurricular sports, about 6 percent in lessons, and about 5 percent in clubs.[285] For children of the same age, the children's well-being module (Wave 7 of the 2001 SIPP Panel)

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[283]U.S. Census Bureau, *Survey of Income and Program Participation Users' Guide*, Third Edition (Washington, DC: U.S. Census Bureau, 2001), p. 6-2–6-3, available from: http://www.sipp.census.gov/sipp/usrguide/sipp2001.pdf, accessed November 21, 2001.

[284]U.S. Census Bureau, "Quality of Income Data," in *Money Income of Households, Families, and Persons in the United States: 1992*, *Current Population Reports*, P60-184 (Washington, DC: U.S. Government Printing Office, 1993), p. C-14.

[285]Calculation by Martin O'Connell, U.S. Census Bureau, based on U.S. Census Bureau, the SIPP 2001 Panel Wave 4 child care module.

found about *six times* as many children in each category, with 39 percent of children in sports (422 percent more than in the child care module), 32 percent in lessons (473 percent more than in the child care module), and 34 percent in clubs (544 percent more than in the child care module).[286]

This substantial discrepancy, presumably an undercount in the child care module, is likely a product of how each module's questionnaire solicits the information, according to Martin O'Connell of the Census Bureau. We agree that this is the most likely explanation. In the child care module, the respondent is asked if "during a typical week last month, [they] used any of the following arrangements to look after the child on a regular basis," followed by a fourteen-item list of arrangements in which before- and after-school activities are the ninth, tenth, and eleventh items.[287] By contrast, the children's well-being module asks about each before- and after-school activity in a separate question. For example, the question about sports asks, "Is (child's name) on a sports team either in or out of school?" The possible responses are "yes" and "no." The same applies to the module's questions about lessons and clubs.[288]

A respondent to the child care module may not consider a child's before- or after-school activities to be child care. The respondent may not have paid careful attention to the entire list of child care arrangements, especially if an earlier item in the list corresponded to their child's primary care arrangement. It is also possible that the arrangement did not count as "regular" according to the child care module's specifications. Any of these scenarios would result in the child care module missing the child's before- and after-school activities, even if the same child's activities would be counted by the children's well-being module. Thus, the structure and context of the questions can result in significant measurement error.

Measurement errors may also be caused by respondents who are not willing to give accurate answers. According to Marc Roemer at the Census Bureau, respondents have been particularly reluctant to tell interviewers about their income, and they may deliberately "fail to report receipt of income, fail to report the amount, underreport or overreport the amount, or misclassify income."[289] Roemer notes that measurement errors may exacerbate problems with the

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[286]Calculation by Martin O'Connell, U.S. Census Bureau, based on U.S. Census Bureau, the SIPP 2001 Panel Wave 7 children's well-being module.

[287]U.S. Census Bureau, "Child Care Topical Module Questionnaire," available from: http://www.sipp.census.gov/sipp/top_mod/2001/quests/wave4/childcare.html, accessed April 6, 2006.

[288]U.S. Census Bureau, "Children's Well Being Topical Module Questionnaire," available from: http://www.sipp.census.gov/sipp/top_mod/2001/quests/wave7/childwellbeing.html, accessed April 6, 2006.

[289]Marc I. Roemer, "Assessing the Quality of the March Current Population Survey and the Survey of Income and Program Participation Income Estimates, 1990-1996" (Washington, DC: U.S. Census Bureau, 2000), p. 1, available from: http://www.census.gov/hhes/www/income/assess1.pdf, accessed December 14, 2001.

income data as the erroneous values are assigned to the missing cells in the imputation process.[290] As the Census Bureau has observed:

> Answers to questions about money income often depend on the memory or knowledge of one person in a household. Recall problems can cause underestimates of income in survey data, because it is easy to forget minor or irregular sources of income. Respondents may also misunderstand what the Census Bureau considers money income or may simply be unwilling to answer these questions correctly because the questions are considered too personal.[291]

Measurement errors also vary by demographic group. Census Bureau researchers Pamela D. McGovern and John M. Bushery have observed that, in the CPS, the demographic groups that were most likely to give inconsistent responses are: persons under twenty-two years old, never-married persons, females, African Americans, children of the reference person, and persons without a college education.[292]

Some of the SIPP's inherent problems aggravate these difficulties. As we discuss throughout this paper, the SIPP's high level of proxy respondents (examined in greater detail below) as well as the weaknesses of the questionnaire (see, for example, our discussion of child care subsidy data), may invite higher levels of respondent error. In addition, mistakes could have been made by the interviewers themselves or by those who processed the data. For example, as noted in a "Survey Methods and Data Reliability" statement from the NSAF, "Interviewers can introduce measurement error if, for example, they vary in the way they deliver questions to respondents and in the way they record the answers obtained."[293]

Proxy responders. *The high proportion of proxy responders in the SIPP child care module (about 40 percent in 1995, 38 percent in 1997, 30 percent in 1999, and 38 percent in 2002) leads to incomplete and inaccurate information.*

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[290]Marc I. Roemer, "Assessing the Quality of the March Current Population Survey and the Survey of Income and Program Participation Income Estimates, 1990-1996" (Washington, DC: U.S. Census Bureau, 2000), p. 1, available from: http://www.census.gov/hhes/www/income/assess1.pdf, accessed December 14, 2001.

[291]U.S. Census Bureau, "Source and Accuracy of Estimates," Supplement to "Money Income in the United States: 2000," *Current Population Reports*, P60-213, (Washington, DC: U.S. Census Bureau, 2001), p. 3, available from: http://www.census.gov/hhes/income/income00/sa.pdf, accessed December 3, 2001.

[292]Pamela D. McGovern and John M. Bushery, "Data Mining the CPS Reinterview: Digging into Response Error," Federal Committee on Statistical Methodology Research Conference Paper, 1999, available from: http://www.fcsm.gov/99papers/mcgovern.pdf, accessed April 15, 2003.

[293]Adam Safir, Fritz Scheuren, and Kevin Wang, "Survey Methods And Data Reliability, 1997 and 1999," The Urban Institute, November 03, 2000, available from: http://www.urban.org/url.cfm?ID=310567, accessed on June 15, 2005.

The SIPP is supposed to interview at least one parent of each child in the household who is under age fifteen. If a parent is not available, however, the SIPP allows proxy responses in order to reduce the "person nonresponse" rate.[294] Thus, the SIPP interviewer is supposed to ask another person in the household to answer questions on behalf of the sampled person. For the child care module, this means that when the "designated parent" is unavailable, other household members are asked to describe the family's child care arrangements.

The Census Bureau does not publish data on proxy response rates. We calculate the proxy response rates for child care questions in the 1995, 1997, 1999, and 2002 SIPPs from the public use data sets. In the 1995 SIPP, 40 percent of the "designated parents" who answered child care–related questions were proxy respondents; in 1997, it was 38 percent; in 1999, SIPP it was 30 percent; and in 2002, it was 38 percent.[295]

Proxy responses, however, are often less complete and less accurate than those from the child's mother.[296] McGovern and Bushery compared responses from CPS interviews on labor force participation to a corresponding set of re-interviews. They found that over half of the proxy responses were inconsistent regarding whether a person was "unemployed looking for work" or "not in labor force."[297] Similarly, Dawn Aldridge and her colleagues at Abt Associates observed "a substantial number of one-wave breaks in WIC receipt [in the SIPP]."[298] They explained how this could potentially lead to errors. "For example, a child reportedly received WIC throughout Wave 2 [of a SIPP panel], did not receive WIC in Wave 3, and once again received WIC throughout Wave 4."[299] Because it was unlikely that so many children would have discontinued

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[294]U.S. Census Bureau, *Survey of Income and Program Participation Users' Guide*, Third Edition (Washington, DC: U.S. Census Bureau, 2001), p. 6-3, available from: http://www.sipp.census.gov/sipp/usrguide/sipp2001.pdf, accessed November 21, 2001.

[295]Authors' calculation based on U.S. Census Bureau, the SIPP 1993 Panel Wave 9 child care module, the SIPP 1996 Panel Wave 4 child care module, the SIPP 1996 Panel Wave 10 child care module, and the SIPP 2001 Panel Wave 4 child care module, with data downloaded from Ferret, available from: http://ferret.bls.census.gov/cgi-bin/ferret, accessed March 2001.

[296]Martin O'Connell, U.S. Census Bureau, email message to authors, February 1, 2005.

[297]Pamela D. McGovern and John M. Bushery, "Data Mining the CPS Reinterview: Digging into Response Error," Federal Committee on Statistical Methodology Research Conference Paper, 1999, available from: http://www.fcsm.gov/99papers/mcgovern.pdf, accessed April 15, 2003.

[298]Dawn Aldridge, Nancy R. Burstein, Mary Kay Fox, Jordan B. Hiller, Robert Kornfeld, Ken Lam, Cristofer Price, and David T. Rodda, "WIC General Analysis Project: Profile of WIC Children" (Alexandria, VA: USDA/Food and Nutrition Service, March 2000), p. D-3, available from: http://www.fns.usda.gov/oane/MENU/Published/WIC/FILES/profile.pdf, accessed April 18, 2003.

[299]Dawn Aldridge, Nancy R. Burstein, Mary Kay Fox, Jordan B. Hiller, Robert Kornfeld, Ken Lam, Cristofer Price, and David T. Rodda, "WIC General Analysis Project: Profile of WIC Children" (Alexandria, VA: USDA/Food and Nutrition Service, March 2000), p. D-3, available from: http://www.fns.usda.gov/oane/MENU/Published/WIC/FILES/profile.pdf, accessed April 18, 2003.

receiving WIC for four months (the period of a wave) only to restart, Aldridge and colleagues considered the errors associated with proxy response a "possible" reason for this inconsistency.

Proxy responses are a particular problem in child care, where the mother is usually the only one who is fully aware of the child's care arrangements. In the SIPP child care module, the questions are quite detailed, inquiring about the types of the care arrangements for each child, whether an arrangement was used regularly in the past month, the duration and location of each arrangement, whether and how much the family paid for each arrangement, and who, if anyone, helped with the payment.[300] A proxy respondent is much less likely to have known the correct answers to these questions.

Biased sample. *High rates of unevenly distributed undercoverage and nonresponse have biased the SIPP's samples, which disproportionately miss many people from low-income households; people from single-parent families; minorities; people with low-educational attainments; public assistance recipients; divorced, separated, and never-married people; and women of childbearing age.*

Multiple researchers have found that the SIPP's sample disproportionately misses people in certain demographic groups due to biased coverage and high nonresponse rates. The groups most affected include persons in low-income households (monthly household income under $1,200); persons in single-parent families; young women (ages eighteen to thirty-nine), particularly young black women; adults with low educational attainment (high school or below); and persons on welfare.[301] According to the Census Bureau:

> Some demographic subgroups are underrepresented in SIPP because of undercoverage and nonresponse. They include young black males, metropolitan residents, renters, people who changed addresses during a panel (movers), and

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[300]See U.S. Census Bureau, "Child Care Topical Module," available from: http://www.sipp.census.gov/sipp/top_mod/1996/quests/wave4/childcar.htm, accessed December 19, 2000; and "SIPP 1996 Wave 10 Child Care Topical Module Questions," available from: http://www.sipp.census.gov/sipp/top_mod/1996/quests/wave10/childcar.htm, accessed June 8, 2005.

[301]U.S. Census Bureau, "The SIPP Quality Profile 1998," Third Edition, SIPP Working Paper No. 230, U.S. Census Bureau, 1998, table 3.6, p. 20, available from: http://www.sipp.census.gov/sipp/workpapr/wp230.pdf, accessed November 21, 2001; U.S. Census Bureau, "Source and Accuracy Statement for the Survey and Income and Program Participation from 1996 Public Use Files," in U.S. Census Bureau and Inter-university Consortium of Political and Social Research (ICPSR), Survey of Income and Program Participation (SIPP) 1996 Panel Wave 4 Core Microdata File (Ann Arbor, MI: Inter-university Consortium of Political and Social Research, 2000), p. 8-4, available from: http://www.icpsr.umich.edu/cgi/archive2.prl, accessed March 5, 2001; U.S. Census Bureau, "SIPP Coverage Ratios - Age by Non-Black/Black Status and Sex," in Source and Accuracy Statement for the 2001 Public Use Files from the Survey of Income and Program Participation (Washington, DC: U.S. Census Bureau, undated), p. 8-6, available from: http://www.nber.org/sipp/2001/sipp01w4.pdf, accessed July 7, 2004; and L. Rizzo, G. Kalton, J.M. Brick, "Weighting Adjustments for Panel Nonresponse in the SIPP," SIPP Working Paper Number 200, U.S. Census Bureau, 1994, pp. 1-6, and pp. 2-4 – 2-8, Table 2-1, "Panel nonresponse rates by category for each of the 31 items retained for further analysis," available from: http://www.sipp.census.gov/sipp/wp200.pdf, accessed December 17, 2001.

people who were divorced, separated, or widowed. The Census Bureau uses weighting adjustments and imputation to correct the underrepresentation. Those procedures, however, may not fully correct for all potential biases.[302]

The Census Bureau has taken measures to redress the biases for these demographic groups, including oversampling, data editing, imputation, and re-weighting, but these measures apparently do not sufficiently correct for the sample biases. For example, even after such adjustments, the 1999 SIPP still missed 28 percent of TANF recipients and 12 percent of food stamp recipients,[303] as discussed below.

Undercoverage. *The SIPP misses many people, particularly divorced, separated, and widowed people and black women generally. The coverage rate in the 1996 SIPP panel of blacks ages fifteen-to forty-nine was 10 percent lower than that of non-blacks in the same age group. For black men, it was 12 percent lower than for the non-black men; and for black women, it was 8 percent lower than for non-black women. The coverage rates of the 2001 SIPP panel had the same level of bias. (The Census Bureau does not publish information on the coverage rates beyond age and race.*)

Undercoverage occurs when a household survey misses eligible households or persons in the sampling process.[304] When some demographic groups have higher undercoverage rates than others, the result is undercoverage bias, which undermines the quality of the survey data.

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[302]U.S. Census Bureau, *Survey of Income and Program Participation Users' Guide*, 3rd ed. (Washington, DC: U.S. Census Bureau, 2001), p. 6-4, available from: http://www.sipp.census.gov/sipp/usrguide/sipp2001.pdf, accessed February 15, 2004.

[303]Authors' calculation based on U.S. Census Bureau, *"Dynamics of Economic Well-Being: Program Participation 1996 to 1999, Who Gets Assistance?" Current Population Reports*, P70–94, tables A-2 and A-4, available from: http://www.census.gov/prod/2003pubs/p70-94.pdf, accessed February 16, 2004; U.S. Department of Health and Human Services, Administration for Children and Families, "Aid to Families with Dependent Children (AFDC) and Temporary Assistance for Needy Families (TANF), Average Monthly Families and Recipients for CALENDAR YEARS 1936 – 2001," available from: http://www.acf.dhhs.gov/news/stats/3697.htm, accessed February 16, 2004; and U.S. Department of Agriculture, Food and Nutrition Service, "Food Stamp Program Participation and Costs (Data as of January 23, 2004)," available from: http://www.fns.usda.gov/pd/fssummar.htm, accessed February 16, 2004.

[304]In an ideal survey sample, every person in the population has an equal chance to be selected. In reality, however, it is hard to select an ideal sample. For instance, if a survey project selects its sample of names and addresses from a telephone directory, the sample will miss the residents who do not have telephones and/or those who do not have their telephone numbers listed. The Census Bureau uses a complex system, based on the decennial Census of Population, to derive samples of names and addresses for its major household surveys, including the CPS and the SIPP. However, coverage errors may occur due to imprecise information on and mobility of the population. If undercoverage is evenly distributed among demographic groups, the sample is well-balanced. If undercoverage is biased, however, some demographic groups will be more represented than others in the sample, and the survey results will not accurately reflect the true population value.

The coverage rate of African Americans (ages fifteen to forty-nine) in the 1996 SIPP panel was 10 percent lower than that of non-blacks in the same age group.[305] For black men, it was 12 percent lower than for non-black men; and for black women, it was 8 percent lower than for non-black women.[306] The 2001 SIPP panel had similar levels of bias.[307] This is particularly problematic because this age group contains most of the mothers with young children who might use child care.

[305]Authors' calculation from U.S. Census Bureau, "SIPP Coverage Ratios - Age by Non-Black/Black Status and Sex," in *Source and Accuracy Statement for the 2001 Public Use Files from the Survey of Income and Program Participation* (Washington, DC: U.S. Census Bureau, undated), p. 8-6, available from: http://www.nber.org/sipp/2001/sipp01w4.pdf, accessed July 7, 2004.

[306]Authors' calculation from U.S. Census Bureau, "SIPP Coverage Ratios - Age by Non-Black/Black Status and Sex," in *Source and Accuracy Statement for the 2001 Public Use Files from the Survey of Income and Program Participation* (Washington, DC: U.S. Census Bureau, undated), p. 8-6, available from: http://www.nber.org/sipp/2001/sipp01w4.pdf, accessed July 7, 2004.

[307]Authors' calculation from U.S. Census Bureau and Inter-university Consortium of Political and Social Research (ICPSR), *Survey of Income and Program Participation (SIPP) 1996 Panel Wave 4 Core Microdata File* (Ann Arbor, MI: Inter-university Consortium of Political and Social Research, 2000), p. 8-4, available from: http://www.icpsr.umich.edu/cgi/archive2.prl, accessed March 5, 2001.

Table A2.
Coverage Rate of Women by Race and Age in SIPP Panels (1990, 1991, 1996 and 2001)

Age Group	1990 Panel Wave 1		1991 Panel Wave 1		1996 Panel Wave 1		2001 Panel Wave 1	
	Black	Non-black	Black	Non-black	Black	Non-black	Black	Non-black
15	.89	.89	.85	.92	.77	1.12	.77	1.12
16-17	.88	.91	1.07	.83	.94	.93	.94	.93
18-19	.77	.87	.74	.92	.83	.86	.83	.86
20-21	.87	1.00	.89	.90	.96	.80	.96	.80
22-24	.78	.87	.78	.89	.67	.87	.67	.87
25-29	.81	.93	.80	.97	.84	.83	.84	.83
30-34	.85	.92	.92	.89	.80	.91	.80	.91
35-39	.78	.91	.86	.87	.90	.99	.90	.99
40-44	1.00	.96	1.03	.99	.97	.93	.97	.93
45-49	.89	.91	1.02	.90	.78	.98	.78	.98
50-54	.87	.94	.75	.94	1.21	.92	1.21	.92
55-59	.81	.94	.78	.94	-	-	-	-
60-61	.90	.94	.78	.93	.99	.90	.99	.90
62-64		.97		.85	.96	1.07	.96	1.07
65-69	.85	.97	.99	.91	.78	.94	.78	.94
70-74	.94	.99	.85	.95	1.33	.94	1.33	.94
75-79		.98	1.07	.93	.91	1.00	.91	1.00
80-84	.99	.97		1.00	-	.97	-	.97
85+		1.05		.96	-	.97	-	.97
Average 15 and over	.87	.94	.89	.92	N/A	N/A	N/A	N/A

Sources: U.S. Census Bureau, "The SIPP Quality Profile 1998," Third Edition, SIPP Working Paper No. 230, U.S. Census Bureau, 1998, table 3.6, p. 20, available from: http://www.sipp.census.gov/sipp/workpapr/wp230.pdf, accessed November 21, 2001; and U.S. Census Bureau, "Source and Accuracy Statement for the Survey and Income and Program Participation from 1996 Public Use Files," in U.S. Census Bureau and Inter-university Consortium of Political and Social Research (ICPSR), *Survey of Income and Program Participation (SIPP) 1996 Panel Wave 4 Core Microdata File* (Ann Arbor, MI: Inter-university Consortium of Political and Social Research, 2000), p. 8-4, available from: http://www.icpsr.umich.edu/cgi/archive2.prl, accessed March 5, 2001; and U.S. Census Bureau, "SIPP Coverage Ratios - Age by Non-Black/Black Status and Sex," in *Source and Accuracy Statement for the 2001 Public Use Files from the Survey of Income and Program Participation* (Washington, DC: U.S. Census Bureau, undated), p. 8-6, available from: http://www.nber.org/sipp/2001/sipp01w4.pdf, accessed July 7, 2004.

Nonresponse and attrition. *The SIPP has high nonresponse and attrition rates, which have increased with each panel, most sharply after 1996. The initial nonresponse rate was about 5 percent in 1984, about 7 percent in 1990, about 8 percent in 1996, and about 13 percent in 2001. The nonresponse rates rise as the panels continue over time, growing with each wave. By the final wave, the nonresponse rate was about 22 percent for the 1984 SIPP, about 21 percent for the 1990 SIPP, about 36 percent for the 1996 SIPP, and about 32 percent for the 2001 SIPP. The highest nonresponse rates occur among young adults (especially males, racial minorities, and the poor—the very groups with which the survey is especially concerned).*

The SIPP suffers from high nonresponse rates, which are caused primarily by continued loss of the sampled households during the life of a panel. For example, the nonresponse rate was about 8 percent for the first wave of the 1996 SIPP panel, but it was about 36 percent for the last wave (twelfth) of the same panel. Hence, about 27 percent of sampled households had dropped out of the panel in four years.[308] Both the 1997 and the 1999 SIPP child care modules belong to the 1996 SIPP panel (Wave 4 and Wave 10, respectively). The 1997 SIPP had a nonresponse rate of about 21 percent, and the 1999 SIPP had a nonresponse rate of 34 percent,[309] because as the survey continued from 1997 through 1999, the panel lost an additional 13 percent of the sampled households. Similarly, the 2002 SIPP child care module was in Wave 4 of the 2001 SIPP panel, which had an initial nonresponse rate of 13 percent. From Wave 1 to Wave 4, this panel lost an additional 13 percent of sampled households, resulting in a nonresponse rate of 26 percent for the 2002 SIPP.[310] (See table A3.) Nonresponse rates are disproportionately high among some demographic groups. According to Robert A. Mofitt and Michele Ver Ploeg, nonresponse rates are particularly high "among young adults, males, minority groups, never-married people, poor people, and people with lower educational attainment."[311]

"Nonresponse" is the failure of sampled people to answer survey questions. Nonresponse includes "unit nonresponse" (a household or a person does not answer any of the questions in a questionnaire), and "item nonresponse" (a person does not answer a specific question—an item in a questionnaire).

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[308]U.S. Census Bureau, *Survey of Income and Program Participation Users' Guide*, Third Edition (Washington, DC: U.S. Census Bureau, 2001), table 2-5, p. 2-19, available from: http://www.sipp.census.gov/sipp/usrguide/sipp2001.pdf, accessed November 21, 2001.

[309]U.S. Census Bureau, *Survey of Income and Program Participation Users' Guide*, Third Edition (Washington, DC: U.S. Census Bureau, 2001), table 2-5, p. 2-19, available from: http://www.sipp.census.gov/sipp/usrguide/sipp2001.pdf, accessed November 21, 2001.

[310]Patrick J. Benton, memorandum, June 24, 2005, "The SIPP Record 2005-2," (Washington, DC: U.S. Census Bureau, 2005).

[311]Robert A. Mofitt and Michele Ver Ploeg, eds., "Appendix D: Summaries of National-Level Survey Data Sets Relevant to Welfare Monitoring and Evaluation," in National Research Council, *Evaluating Welfare Reform in an Era of Transition* (Washington, DC: National Academy Press, 2001), p. 227.

As described in the 2001 *Survey of Income and Program Participation Users' Guide*, "Unit nonresponse occurs in SIPP when one or more of the people residing at a sample address are not interviewed and no proxy interview is obtained."[312] The users' guide also distinguishes between two types of unit nonresponse: household nonresponse and person nonresponse.

> Household nonresponse occurs either when the interviewer cannot locate the household or the when [the] interviewer locates the household but cannot interview any adult household members. Person-level nonresponse occurs when at least one person in the household is interviewed and at least one other person is not—usually because that person refuses to answer the questions, or is unavailable and no proxy is taken.[313]

It is difficult to determine whether person nonresponse is more pervasive in those SIPP topical modules in which a designated person is supposed to answer the questions. For example, in the child care module, questions must be answered by a "designated parent" (in the case of a married couple, the SIPP considers the mother to be the designated parent). Should the designated parent be unavailable, the survey must either rely on the knowledge of a proxy respondent or, lacking a knowledgeable proxy, record a person nonresponse for that module. This occurs even if the respondent has completed other modules.

The Census Bureau's only indication that a respondent has answered a particular part of the questionnaire is a question at the end of the interview that asks who answered the majority of the questions. (This is used by field representatives to interview the same person in the next wave.) There has not been any research on whether person nonresponse is greater when a designated person is supposed to answer the questions in SIPP topical modules. However, given the procedures described above, it seems likely that such modules requiring specific knowledge would be more vulnerable to person nonresponse than would the core survey (or those modules that rely on more general knowledge).

Item nonresponse occurs when a person participates in the survey but fails to respond to one or more items on the questionnaire, resulting in missing data. Failure of an interviewer to record an answer will also result in item nonresponse. In addition, during data editing, analysts may deem a response to be inconsistent with related responses and recode it as item

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[312]U.S. Census Bureau, *Survey of Income and Program Participation Users' Guide*, Third Edition (Washington, DC: U.S. Census Bureau, 2001), p. 4-1, available from: http://www.sipp.census.gov/sipp/usrguide/sipp2001.pdf, accessed on September 28, 2005.

[313]U.S. Census Bureau, *Survey of Income and Program Participation Users' Guide*, Third Edition (Washington, DC: U.S. Census Bureau, 2001), p. 2-18, available from: http://www.sipp.census.gov/sipp/usrguide/sipp2001.pdf, accessed on September 28, 2005.

nonresponse.[314] As noted in the users' guide, if the information provided by respondents is not consistent with edit specifications, the information may be deleted during the processing stage and then imputed.[315] Item nonresponse rates vary with different questions. Questions on income typically have high nonresponse rates. According to the *SIPP Users' Guide*, nonresponse rates for income are typically around 10 percent.[316]

Item nonresponse in the SIPP core survey can become unit nonresponse in a module when the item is central to a particular topical module. For example, a person who did not answer the question on parenthood in the core survey (item nonresponse in the core data) would also be missing in the SIPP child care module (unit nonresponse in the child care topical module). Because it is not recorded, the level of this kind of unit nonresponse is unknown.

"Attrition nonresponse" (or "attrition") is another type of nonresponse, defined as sample loss during the course of a longitudinal survey.[317] (In the SIPP working papers on nonresponse, the terms "nonresponse" and "attrition" are often used interchangeably.) As the Census Bureau describes:

> Sample attrition is another major concern in SIPP because of the need to follow the same people over time. Attrition reduces the available sample size. To the extent that those leaving the sample are systematically different from those who remain in the sample, survey estimates could be biased.[318]

The SIPP is vulnerable to high levels of attrition because sampled persons in the SIPP are interviewed repeatedly during a period of more than two years. In the 1996 SIPP Panel, for example, the initial nonresponse rate was about 8 percent (Wave 1). By Wave 4 (the spring and summer of 1997), when the first child care module was conducted, the household nonresponse

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[314]U.S. Census Bureau, *Survey of Income and Program Participation Users' Guide*, Third Edition (Washington, DC: U.S. Census Bureau, 2001), p. 4-2, available from: http://www.sipp.census.gov/sipp/usrguide/sipp2001.pdf, accessed November 21, 2001.

[315]U.S. Census Bureau, *Survey of Income and Program Participation Users' Guide*, Third Edition (Washington, DC: U.S. Census Bureau, 2001), p. 2-21, available from: http://www.sipp.census.gov/sipp/usrguide/sipp2001.pdf, accessed on September 28, 2005.

[316]U.S. Census Bureau, *Survey of Income and Program Participation Users' Guide*, Third Edition (Washington, DC: U.S. Census Bureau, 2001), p. 6-2, available from: http://www.sipp.census.gov/sipp/usrguide/sipp2001.pdf, accessed November 21, 2001.

[317]U.S. Census Bureau, *Survey of Income and Program Participation Users' Guide*, Third Edition (Washington, DC: U.S. Census Bureau, 2001), p. 2-17, available from: http://www.sipp.census.gov/sipp/usrguide/sipp2001.pdf, accessed November 21, 2001.

[318]U.S. Census Bureau, *Survey of Income and Program Participation Users' Guide*, Third Edition (Washington, DC: U.S. Census Bureau, 2001), p. 1-6, available from: http://www.sipp.census.gov/sipp/usrguide/sipp2001.pdf, accessed November 21, 2001.

rate, including initial nonresponse and subsequent attrition, reached about 21 percent.[319] By Wave 10 (the spring and summer of 1999), when the second child care module was conducted, the household nonresponse rate had risen to 34 percent.[320]

Table A3 shows that the problem of nonresponse and attrition in the SIPP became more severe with each panel, and that it worsened rapidly after the 1996 SIPP redesign. The nonresponse for Wave 1 of the 2004 panel is about three times as high as that of the corresponding wave of the 1984 panel (15 percent for the 2004 panel[321] versus 5 percent for the 1984 panel[322]), and the nonresponse for Wave 4 of the 2004 panel is nearly twice as high as that of the corresponding wave of the 1984 panel (28 for the 2004 panel[323] versus 15 percent for the 1984 panel).[324]

Figure 2 schematically shows the four types of potential nonresponse error in one wave of one SIPP panel.

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[319]U.S. Census Bureau, *Survey of Income and Program Participation Users' Guide*, Third Edition (Washington, DC: U.S. Census Bureau, 2001), table 2-5, p. 2-19, available from: http://www.sipp.census.gov/sipp/usrguide/sipp2001.pdf, accessed November 21, 2001. Martin O'Connell of the Census Bureau notes that although the sample attrition rate in the 1996 SIPP panel was 21 percent when the child care data were collected in the fourth wave, most of the sample losses occurred in earlier waves (particularly from nonresponse in wave one).

[320]U.S. Census Bureau, *Survey of Income and Program Participation Users' Guide*, Third Edition (Washington, DC: U.S. Census Bureau, 2001), table 2-5, p. 2-19, available from: http://www.sipp.census.gov/sipp/usrguide/sipp2001.pdf, accessed November 21, 2001.

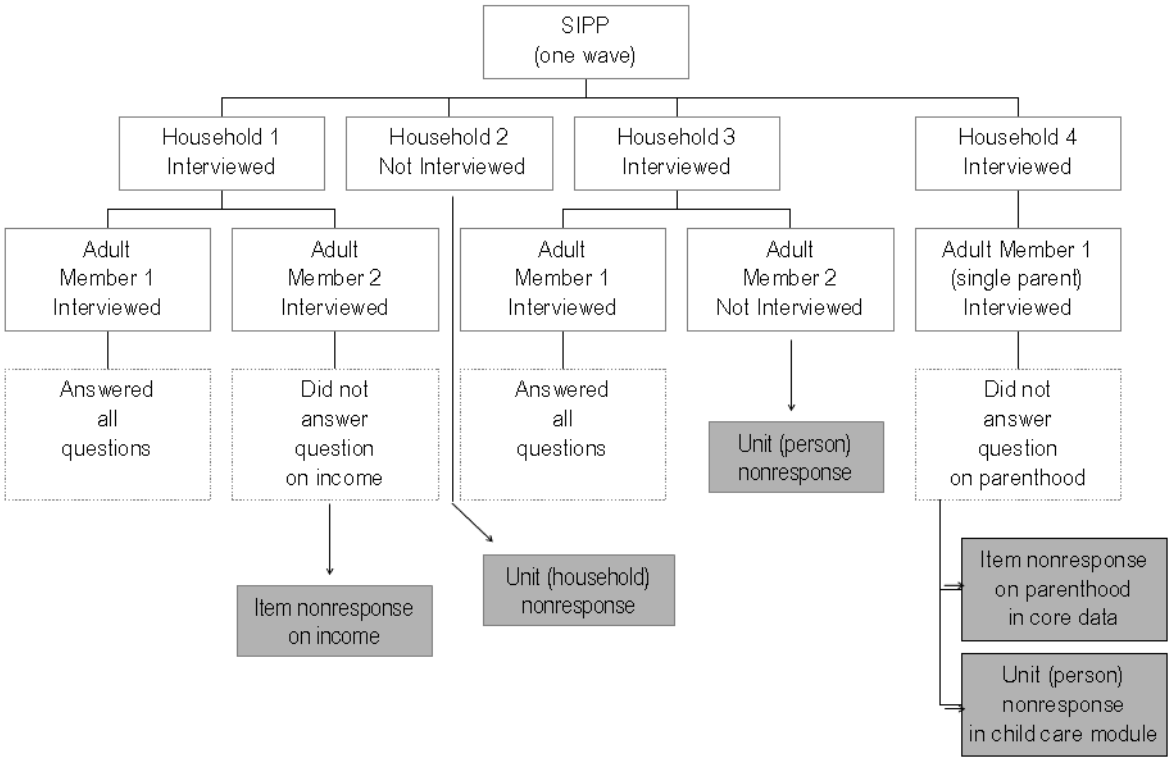
[321]Patrick J. Benton, memorandum, June 24, 2005, "The SIPP Record 2005-2," (Washington, DC: U.S. Census Bureau, 2005).

[322]U.S. Census Bureau, *The SIPP Quality Profile 1998*, Third Edition, SIPP Working Paper No. 230, U.S. Census Bureau, 1998, p. 45, table 5.1, http://www.sipp.census.gov/sipp/workpapr/wp230.pdf (accessed November 21, 2001).

[323]Patrick J. Benton, memorandum, June 24, 2005, "The SIPP Record 2005-2," (Washington, DC: U.S. Census Bureau, 2005).

[324]U.S. Census Bureau, *The SIPP Quality Profile 1998*, Third Edition, SIPP Working Paper No. 230, U.S. Census Bureau, 1998, p. 45, table 5.1, http://www.sipp.census.gov/sipp/workpapr/wp230.pdf (accessed November 21, 2001).

Figure 2.
Types of Nonresponse Error in a Wave of the SIPP Core Survey



Source: Authors' construction with information from the Census Bureau's discussions on nonresponse in the SIPP. See U.S. Census Bureau, *Survey of Income and Program Participation Users' Guide*, third edition (Washington, DC: U.S. Census Bureau, 2001) pp. 2-17–2-21, http://www.sipp.census.gov/sipp/usrguide/sipp2001.pdf (accessed November 12, 2001); and U.S. Census Bureau, "The SIPP Quality Profile 1998," third edition, SIPP Working Paper no. 230 (Washington, DC: U.S. Census Bureau, 1998), pp. 43–49, http://www.sipp.census.gov/sipp/workpapr/wp230.pdf (accessed November 21, 2001).

Each of these distinct types of nonresponse affects the quality of the data, yet the Census Bureau analyses have focused mostly on the level of household nonresponse, and have seldom assessed the levels of person nonresponse and item nonresponse. Thus, Census Bureau publications on child care show nonresponse rates for household units over the life of the SIPP panel, but not for individual persons. Adding person nonresponse results in a much higher total nonresponse rate.

In its most recent full assessment of the quality of the SIPP data, for example, the Census Bureau observes that for the 1984–1993 panels, complete person nonresponse to topical modules

ranges from 3 to 9 percent.[325] It also estimates the person nonresponse rate for the 1984 SIPP Panel at 5 percent.[326] Consistent with the Census Bureau estimates, our calculation from the 1996 SIPP Wave 4 core survey shows a 5 percent person nonresponse.[327] And our calculation from the 1996 Wave 4 child care module shows a person nonresponse rate of 5 percent.[328] This leads us to estimate, conservatively, that the nonresponse rates are 25 to 30 percent for the 1997 SIPP child care module (that is, 21 percent household nonresponse for the 1996 SIPP Wave 4 panel plus 4 to 9 percent person nonresponse).[329] We also estimate a 40 percent nonresponse rate for the 1999 SIPP child care module.

The SIPP tends to miss disproportionally more people from minority groups, low-income families, and those with low educational attainment—because these subgroups have disproportionally high nonresponse rates. According to the Committee on National Statistics, "In the SIPP, attrition is more likely to occur among young adults, males, minority groups, never-married people, poor people, and people with lower educational attainment."[330] As a result, these subgroups are underrepresented in the survey data. Lou Rizzo, Graham Kalton, and J. Michael Brick of Westat, Inc., systematically analyzed the characteristics of the "attritors" (whom they defined as "panel nonrespondents") of the 1987 SIPP panel.[331] In the first wave of the 1987 SIPP panel, the household nonresponse rate was 7 percent. By the last wave, a total of 21 percent of

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[325]U.S. Census Bureau, "The SIPP Quality Profile 1998," Third Edition, SIPP Working Paper No. 230, U.S. Census Bureau, 1998, p. 56, available from: http://www.sipp.census.gov/sipp/workpapr/wp230.pdf, accessed November 21, 2001.

[326]U.S. Census Bureau, "The SIPP Quality Profile 1998," Third Edition, SIPP Working Paper No. 230, U.S. Census Bureau, 1998, table 5.2, p. 48, available from: http://www.sipp.census.gov/sipp/workpapr/wp230.pdf, accessed November 21, 2001.

[327]Authors' calculation based on U.S. Census Bureau, the SIPP 1996 Panel Wave 4 child care module, with data downloaded from Ferret, available from: http://ferret.bls.census.gov/cgi-bin/ferret, accessed March 2001.

[328]Authors' calculation based on U.S. Census Bureau, the SIPP 1996 Panel Wave 4 child care module, with data downloaded from Ferret, available from: http://ferret.bls.census.gov/cgi-bin/ferret, accessed March 2001.

[329]We base our estimate on three assumptions: first, household nonresponse (21 percent) was constant across households and demographic groups; second, person nonresponse in the core survey (5 percent) was distributed proportionally between the designated parents with children under age fourteen and the rest of the adult population; and third, the person nonresponse in the module (5 percent) included item nonresponse related to parenthood in the core data.

[330]Robert A. Mofitt and Michele Ver Ploeg, eds., "Appendix D: Summaries of National-Level Survey Data Sets Relevant to Welfare Monitoring and Evaluation," in National Research Council, *Evaluating Welfare Reform in an Era of Transition* (Washington, DC: National Academy Press, 2001), p. 227.

[331]If a household does not participate in a survey at the very beginning, researchers will not be able to learn anything about this household beyond its geographical location. Therefore, no information will be available about the initial nonrespondents' characteristics in the SIPP. See L. Rizzo, G. Kalton, and J.M. Brick, "Weighting Adjustments for Panel Nonresponse in the SIPP," SIPP Working Paper Number 200, U.S. Census Bureau, 1994, p. 1-1, available from: http://www.sipp.census.gov/sipp/wp200.pdf, accessed December 17, 2001.

the initial respondents had left the panel,[332] producing a total household nonresponse rate of 28 percent. Table A4 shows panel nonresponse rates for different demographic groups. Low-income households had higher nonresponse rates than other income groups (25 percent for persons with monthly household income under $1,200, compared with 19 to 20 percent for persons with monthly household income over $3,000). Minorities had higher nonresponse rates than whites (33 percent for blacks, 31 percent for Native Americans, and 30.5 percent for Asians, versus 19 percent for whites). Single-person–headed families had higher nonresponse rates than married- or cohabiting-couple families (31 percent for male-headed families, 27 percent for female-headed families, versus 19 percent for coupled families). Further, the nonresponse rate was higher for public assistance recipients than for those who did not receive public assistance.

Nonresponse bias may be a particularly serious problem with respect to child care data for low-income families because nonresponse appears to be more severe among single-parent families, related subfamilies, and families on welfare. According to a Census Bureau working paper that tabulated the 1987 SIPP panel's nonresponse rates by demographic characteristics and public assistance status, the nonresponse rate for female-headed families was 43 percent higher than for married-couple families (about 27 percent versus about 19 percent); for related subfamilies, 40 percent higher than for primary families (about 28 percent versus about 20 percent); and for families receiving AFDC, 19 percent higher than for nonrecipient families (about 24 percent versus about 21 percent).[333]

[332]Authors' calculation based on U.S. Census Bureau, "The SIPP Quality Profile 1998," Third Edition, SIPP Working Paper No. 230, U.S. Census Bureau, 1998, p. 45, table 5.1, http://www.sipp.census.gov/sipp/workpapr/wp230.pdf (accessed November 21, 2001).

[333]Authors' calculation from L. Rizzo, G. Kalton, J.M. Brick, "Weighting Adjustments for Panel Nonresponse in the SIPP," SIPP Working Paper Number 200, U.S. Census Bureau, 1994, table 2-1, pp. 1-6, and 2-4—2-8, available from: http://www.sipp.census.gov/sipp/wp200.pdf, accessed December 17, 2001.

Table A3. Nonresponse Rates in the SIPP Panels (1984–2004)

	1984	1985	1986	1987	1988	1990	1991	1992	1993	1996	2001	2004
Wave												
1	4.9%	6.7%	7.3%	6.7%	7.5%	7.3%	8.4%	9.3%	8.9%	8.4%	13.3%	14.9%
2	9.4%	10.8%	13.4%	12.6%	13.1%	12.6%	13.9%	14.6%	14.2%	14.5%	21.9%	21.9%
3	12.3%	13.2%	15.2%	14.2%	14.7%	14.4%	16.1%	16.4%	16.2%	17.8%	24.7%	25.6%
4	15.4%	16.3%	17.1%	15.9%	16.5%	16.5%	17.7%	18.0%	18.2%	20.9%	25.9%	27.6%
5	17.4%	18.8%	19.3%	18.1%	17.8%	18.8%	19.3%	20.3%	20.2%	24.6%	27.5%	-
6	19.4%	19.7%	20.0%	18.9%	18.3%	20.2%	20.3%	21.6%	22.2%	27.4%	28.2%	-
7	21.0%	20.5%	20.7%	19.0%	-	21.1%	21.0%	23.0%	24.3%	29.9%	28.9%	-
8	22.0%	20.8%	-	-	-	21.3%	21.4%	24.7%	25.5%	31.3%	30.3%	-
9	22.3%	-	-	-	-	-	-	26.2%	26.9%	32.8%	31.9%	-
10	-	-	-	-	-	-	-	26.6%	-	34.0%	-	-
11	-	-	-	-	-	-	-	-	-	35.1%	-	-
12	-	-	-	-	-	-	-	-	-	35.5%	-	-

Sources: U.S. Census Bureau, *The SIPP Quality Profile 1998*, Third Edition, SIPP Working Paper No. 230, U.S. Census Bureau, 1998, p. 45, table 5.1, http://www.sipp.census.gov/sipp/workpapr/wp230.pdf (accessed November 21, 2001); U.S. Census Bureau, *Survey of Income and Program Participation Users' Guide*, Third Edition (Washington, DC: U.S. Census Bureau, 2001), p. 2-17, table 2-5, http://www.sipp.census.gov/sipp/usrguide/sipp2001.pdf (accessed November 21, 2001); and Patrick J. Benton, memorandum, June 24, 2005, "The SIPP Record 2005-2," (Washington, DC: U.S. Census Bureau, 2005).

Table A4.
Nonresponse Rate by Demographic Characteristics and Public Assistance Status: SIPP (1987)

Characteristics	Nonresponse rate	Characteristics	Nonresponse rate
All	20.8		
Household type		Marital status	
Couple	18.7	Married couple	18.2
Male-headed family	31.1	Widow	15.7
Female-headed family	26.8	Divorced/separated	24.9
Male-headed nonfamily	27.3	Never married	30.4
Female-headed nonfamily	18.8	Education	
Household size		Less than high school	22.4
1 person	16.9	High school graduate	22.7
2 persons	21.0	College	20.7
3 persons	20.6	Post-college	14.8
4 persons	20.0	Monthly household income	
5 persons or larger	23.2	Less than $1,200	25.4
Family type		$1,200 - $2,000	23.2
In primary family	20.1	$2,000 - $3,000	22.2
Not family member	43.1	$3,000 - $4,000	20.1
Unrelated subfamily	32.9	$4,000 - $5,000	18.8
Related subfamily	28.1	$5,000 - $6,000	18.4
Primary individual	19.1	$6,000 - $8,000	19.9
Gender		$8,000 - $10,000	20.3
Male	21.6	Over $10,000	20.3
Female	20.1	Monthly personal income	
Age		Less than $1,200	22.5
16-24	30.7	$1,200 - $2,000	20.9
25-50	21.4	$2,000 - $3,000	18.3
51-71	17.0	$3,000 - $4,000	16.6
Older than 71	13.9	$4,000 - $5,000	13.1
Race		Over $5,000	21.7
White	18.8	WIC	
Black	33.4	Yes	24.0
Native American	31.0	No	20.6
Asian	30.5	AFDC	
Hispanic origin		Yes	24.3
Yes	28.5	No	20.5
No	22.1	Food stamps	
Unknown	18.8	Yes	22.2
Employment status		No	20.5
On job	21.5	General assistance	
Layoff	31.8	Yes	30.1
Not in labor force	19.3	No	20.4

Source: L. Rizzo, G. Kalton, and J.M. Brick, "Weighting Adjustments for Panel Nonresponse in the SIPP," SIPP Working Paper Number 200, U.S. Census Bureau, 1994, p. 1-6, and pp. 2-4–2-8, table 2-1. "Panel nonresponse rates by category for each of the 31 items retained for further analysis," available from: http://www.sipp.census.gov/sipp/wp200.pdf, accessed December 17, 2001.

Uncertain weighting and imputation. *To remedy the problems of undercoverage, nonresponse and attrition, and measurement error, SIPP data undergo extensive weighting and imputation, with uneven results. For example, even after weighting and imputation, the SIPP missed about 28 percent of the persons who received welfare in 1999 (for all waves in that calendar year) compared to administrative sources.*

As discussed above, undercoverage, nonresponse and attrition, and measurement errors cause the SIPP to miss many households and individuals from minority groups, single-parent families, families on welfare, and low-income families. In response, the Census Bureau makes various adjustments to the data, such as imputation (that is, assigning for each missing value a value reported for a person with similar characteristics) and weighting (that is, assigning a sample weight to approximate population totals). "Little is known about the effectiveness of the adjustments in reducing biases," according to the Census Bureau.[334]

Evaluations of these adjustments indicate that they do not fully correct these measurement biases. Several studies, for example, conclude that the imputed values in the SIPP are not accurate. Minh Huynh, Kalman Rupp, and James Sears at the Social Security Administration have noted that in the 1993 SIPP panel, the imputed Social Security benefits had "much higher" levels of both the mean errors and the average absolute errors than the non-imputed ones. Steven G. Pennell, a researcher at the Survey Research Center of the University of Michigan, noted that "the relationship between variables of nonimputed values [in Census Bureau household surveys] could be significantly different from that of imputed values,"[335] indicating that the imputed values might not be accurate. Similarly, studies of the SIPP's weighting process indicate that it falls short in reducing bias. For example, based on studies of imputation in the SIPP panels prior to 1990, the Committee on National Statistics of the National Academy of Sciences concluded that "there is also evidence that the current noninterview weighting adjustments do not fully compensate for differential attrition across population groups."[336]

John Coder and Lydia Scoon-Rogers, at the time researchers at the Census Bureau, evaluated the 1990 SIPP. They found that even after reweighting and imputation, the 1990 SIPP misses substantial income compared to independent administrative sources: 8.2 percent of wages

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[334]U.S. Census Bureau, *Survey of Income and Program Participation Users' Guide*, Third Edition (Washington, DC: U.S. Census Bureau, 2001), p. 6-1, available from: http://www.sipp.census.gov/sipp/usrguide/sipp2001.pdf, accessed November 21, 2001.

[335]Steven G. Pennell, "Cross-Sectional Imputation and Longitudinal Editing Procedures in the Survey of Income and Program Participation," SIPP Working Paper No. 186, U.S. Census Bureau, 1993, p. 66, available from: http://www.sipp.census.gov/sipp/wp9314.pdf, accessed December 7, 2001.

[336]Robert A. Mofitt and Michele Ver Ploeg, eds., "Appendix D: Summaries of National-Level Survey Data Sets Relevant to Welfare Monitoring and Evaluation," in National Research Council, *Evaluating Welfare Reform in an Era of Transition* (Washington, DC: National Academy Press, 2001), p. 227.

and salaries, 21.6 percent of self-employment income, and only 29.9 percent of AFDC.[337] They concluded: "In general, imputation systems tend to assign values that are, on average, below the true value."[338]

Evidence of the limited success of this reweighting is found in the SIPP's undercounts of incomes from various sources, such as the number and percent of people below the poverty level, the welfare and food stamp recipients, and the amount of the welfare dollars. In the assessment of these miscounts, we compare the data from the SIPP publications to the data from the administrative sources, independent sources, and the CPS.

Income: From 1990 to 1996, the SIPP, on average, missed about 14 percent of total annual income from all sources (earnings, property income, transfers, and pensions) compared to the National Income and Product Accounts (NIPAs). The types of income most likely to be missed were property income (43 percent in 1996) and welfare (24 percent in 1996), with earnings and pensions somewhat less likely to be missed (12 percent and 14 percent in 1996, respectively). Although based on a different methodology and therefore not exactly comparable, compared to the benchmark, in 2001, the SIPP missed about 21 percent of total annual income from all sources (earnings, property income, transfers, and pensions) compared to the State Personal Income (SPI) data. The SIPP missed 19 percent of earnings, 21 percent of transfers, and 53 percent of property income.

Many SIPP estimates are inconsistent with administrative data and with other surveys.[339] The Census Bureau has used some data sources as benchmarks in evaluating the accuracy of the SIPP data. The benchmarks for income data include: independent sources, such as the National Income and Product Accounts (NIPAs), and administrative sources, such as the Internal Revenue Service (IRS) and the Social Security Administration (SSA). The Census Bureau, however, has cautioned about the "uncertainty" in these benchmark income estimates:

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[337]John Coder and Lydia Scoon-Rogers, "Evaluating the Quality of Income Data Collected in the Annual Supplement to the March Current Population Survey and the Survey of Income and Program Participation," SIPP Working Paper No. 215, U.S. Census Bureau, 1996, Table 2, p. 42, available from: http://www.sipp.census.gov/sipp/wp215.pdf, accessed June 15, 2005.

[338]John Coder and Lydia Scoon-Rogers, "Evaluating the Quality of Income Data Collected in the Annual Supplement to the March Current Population Survey and the Survey of Income and Program Participation," SIPP Working Paper No. 215, U.S. Census Bureau, 1996, p. 5, available from: http://www.sipp.census.gov/sipp/wp215.pdf, accessed December 11, 2001.

[339]This section compares income estimates from the SIPP and the CPS with independent data from the Bureau of Economic Analysis (BEA). It should be recognized that these data sets serve different purposes. Although the SIPP and the CPS are both designed to be nationally representative household surveys, the emphasis in the SIPP is in providing detailed information on income and program participation (with an over-sample of the low-income population), and the emphasis in the CPS is in providing the nation's official statistics on labor force, income, and poverty. The emphasis in BEA's National Income and Product Accounts (NIPAs) is to describe the performance of the overall economy. Because household survey data have known problems with the underreporting of income, we follow the longstanding practice of the Census Bureau by comparing income amounts from the household surveys with independent data sources.

> First, not all of the information needed to make some of these adjustments mentioned above are available. Second, administrative sources are also subject to estimation problems resulting from the lack of adequate data, and in the case of the NIPA, periodically undergo significant revision to correct for some of these errors when more recent or more accurate information becomes available. Third, even though attempts are made to include income received by those operating in the legal 'informal' economy in the NIPA, these estimates are subject to some unknown degree or error. Fourth, no attempt is made to include estimates of income received through illegal means.[340]

Notwithstanding the complexities of using administrative information, the NIPAs are the major source of data that have been used to evaluate the quality of income data in household surveys.

The NIPAs, defined as the Bureau of Economic Analysis's (BEA) "economic accounts that display the value and composition of national output and the distribution of incomes generated in its production,"[341] are one of the three major components of the BEA's National Economic Accounts, used to gauge the state of the national economy. The most cited indicator in the NIPAs is the gross domestic product (GDP). The NIPAs' data are collected, analyzed, and published by the BEA at the Department of Commerce. The NIPAs' data on government transactions and transfer payments to persons are from administrative records.[342] For example, the monthly NIPAs' data on welfare and food stamp recipiency are from AFDC data provided by the Department of Health and Human Services (HHS),[343] and food stamp data provided by the Department of Agriculture (USDA).[344]

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[340]U.S. Census Bureau, "Quality of Income Data," in "Money Income of Households, Families, and Persons in the United States: 1992," *Current Population Reports*, P60-184 (Washington, DC: U.S. Government Printing Office, 1993), p. C-13.

[341]U.S. Department of Commerce, Bureau of Economic Analysis, "National income and product accounts (NIPAs)," in *Glossary* (Washington, DC: U.S. Department of Commerce, undated), available from: http://www.bea.doc.gov/bea/glossary/glossary_n.htm, accessed February 11, 2004.

[342]U.S. Department of Commerce, Bureau of Economic Analysis, *Methodology Papers: U.S. National Income and Product Accounts, Government Transactions* (Washington, DC: U.S. Department of Commerce, 1988), p. 1, available from: http://www.bea.doc.gov/bea/ARTICLES/NATIONAL/NIPA/Methpap/methpap5.pdf, accessed February 10, 2004.

[343]U.S. Department of Commerce, Bureau of Economic Analysis, *Methodology Papers: U.S. National Income and Product Accounts, Government Transactions* (Washington, DC: U.S. Department of Commerce, 1988), p. 97, available from: http://www.bea.doc.gov/bea/ARTICLES/NATIONAL/NIPA/Methpap/methpap5.pdf, accessed February 10, 2004.

[344]U.S. Department of Commerce, Bureau of Economic Analysis, *Methodology Papers: U.S. National Income and Product Accounts, Government Transactions* (Washington, DC: U.S. Department of Commerce, 1988), p. 46, available from: http://www.bea.doc.gov/bea/ARTICLES/NATIONAL/NIPA/Methpap/methpap5.pdf, accessed February 10, 2004.

For 2001, there is no available study that uses the NIPAs to benchmark the income data in either the CPS or the SIPP. There is, however, a study performed by BEA and Census Bureau staff that assesses the 2001 income data from the CPS using the BEA's State Personal Income (SPI) data.[345] Thus, to benchmark the income data from the 2001 SIPP panel, we also use the SPI data.[346] The primary sources of the SPI income data are administrative data collected from a variety of federal agencies, including the U.S. Department of Labor, HHS, SSA, IRS, the U.S. Department of Veterans Affairs, and the U.S. Department of Defense.[347] Where necessary, the BEA supplements the administrative data with non-administrative data from other official sources. For example, in order to estimate farm proprietors' incomes, the BEA uses USDA estimates, based on sample surveys, of the income of all farms.[348]

Compared to the NIPAs from 1990 though 1996, the SIPP typically underestimated income from all major sources, missing an average of 14 percent of total annual income.[349] It missed 13 percent of total national income in 1990, 13 percent in 1993, and 14 percent in 1996.[350] The SIPP missed a higher proportion of the welfare receipts: 24 percent of total family assistance in 1990, 11 percent in 1993, and 24 percent in 1996.

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[345]See John Ruser, Adrienne Pilot, and Charles Nelson, "Alternative Measures of Household Income: BEA Personal Income, CPS Money Income, and Beyond," Paper prepared for presentation to the Federal Economic Statistics Advisory Committee (FESAC), December 14, 2004.

[346]The report from which we derive the NIPAs benchmark data for the SIPP and the CPS uses a separate NIPAs benchmark for each survey, adjusting for the time-period and decedent differences between the two surveys. The study on which we base our SPI benchmark, however, compares the SPI data only to the CPS, and not specifically to the SIPP. Thus, the study makes no similar adjustment for the differences between the CPS and the SIPP. Therefore, the 1990 to 1996 data based on the NIPAs use a different methodology than do the 2001 data based on the SPI, so the 2001 estimates should not be compared with the 1990 to 1996 estimates. It should be noted, however, that the differences between the two NIPAs benchmarks for the CPS and the SIPP are very small: 0.3 percent for the total income, 0.15 percent for earnings, 0.7 percent for property income, 1.2 percent for government transfers, and 1.1 percent for pensions. These differences are small compared to the differences observed between the surveys' data and the administrative benchmarks.

[347]U.S. Department of Commerce, Bureau of Economic Analysis, "State Personal Income: 2004 Methodology" (Washington, DC: U.S. Department of Commerce, 2005), http://www.bea.gov/bea/regional/articles/spi2004/Complete_Methodology.pdf (accessed April 3, 2006).

[348]U.S. Department of Commerce, Bureau of Economic Analysis, "State Personal Income: 2004 Methodology" (Washington, DC: U.S. Department of Commerce, 2005), http://www.bea.gov/bea/regional/articles/spi2004/Complete_Methodology.pdf (accessed April 3, 2006).

[349]Marc I. Roemer, "Assessing the Quality of the March Current Population Survey and the Survey of Income and Program Participation Income Estimates, 1990–1996" (Washington, DC: U.S. Census Bureau, 2000), table 3b, p. 47, available from: http://www.census.gov/hhes/www/income/assess1.pdf, accessed December 14, 2001.

[350]Authors' calculation based on Marc I. Roemer, "Assessing the Quality of the March Current Population Survey and the Survey of Income and Program Participation Income Estimates, 1990–1996" (Washington, DC: U.S. Census Bureau, 2000), table 3b, p. 47, available from: http://www.census.gov/hhes/www/income/assess1.pdf, accessed December 14, 2001;

The SIPP's undercount of government transfer income has similarly grown. Compared to benchmark data, the SIPP undercounts aggregate transfer income by 8 percent in 1990, 11 percent in 1993, and 14 percent in 1996. The biggest gap in income estimates between the SIPP and the NIPAs occurred in the property income data (including interest, dividends, rent, and royalties),[351] with the SIPP's estimates only about 57 percent of the NIPAs' data in 1996.[352] The SIPP's estimates of cash transfers were closer to the benchmark data in 1996—about 86 percent of the NIPAs' data.[353]

The Census Bureau has helpfully provided a similar, but less complete analysis for 2001 using SPI data.[354] Compared to the SPI data, the SIPP missed about 21 percent of total annual income, with underestimates occurring in the categories of earnings, property income, and government transfers.[355] The SIPP undercounted earnings income by about 19 percent, and transfer income by about 21 percent.[356] The biggest gap in income estimates between the SIPP and the benchmark SPI data occurred in property income (including interest, dividends, rent, and royalties), with the SIPP estimate at only about 47 percent of the SPI data.[357] (Some of this

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[351]The SIPP missed a significant proportion of property income because no post-imputation adjustment is made for interest income (such an adjustment is made in the CPS), so the SIPP property income estimates should not be compared to the CPS.

[352]Marc I. Roemer, "Assessing the Quality of the March Current Population Survey and the Survey of Income and Program Participation Income Estimates, 1990–1996" (Washington, DC: U.S. Census Bureau, 2000), table 3b, p. 47, available from: http://www.census.gov/hhes/www/income/assess1.pdf, accessed December 14, 2001.

[353]Marc I. Roemer, "Assessing the Quality of the March Current Population Survey and the Survey of Income and Program Participation Income Estimates, 1990–1996" (Washington, DC: U.S. Census Bureau, 2000), table 3b, p. 47, available from: http://www.census.gov/hhes/www/income/assess1.pdf, accessed December 14, 2001.

[354]See John Ruser, Adrienne Pilot, and Charles Nelson, "Alternative Measures of Household Income: BEA Personal Income, CPS Money Income, and Beyond," Paper prepared for presentation to the Federal Economic Statistics Advisory Committee (FESAC), December 14, 2004; and for the SIPP, personal communication from staff of the Longitudinal Income Statistics Branch, U.S. Census Bureau, to the authors, based on unpublished data from the 2001 Survey of Income and Program Participation (SIPP).

[355]The 1990 to 1996 data are based on comparisons to the NIPAs, which have been adjusted for universe and conceptual differences with the survey estimates. The 2001 data are based on the SPI, which have not been adjusted for universe and conceptual differences with the survey estimates. This exaggerates the observed differences between the SPI aggregates and the survey estimates, so the 2001 estimates should not be compared with the 1990 to 1996 estimates.

[356]The 1990 to 1996 data are based on comparisons to the NIPAs, which have been adjusted for universe and conceptual differences with the survey estimates. The 2001 data are based on the SPI, which have not been adjusted for universe and conceptual differences with the survey estimates. This exaggerates the observed differences between the SPI aggregates and the survey estimates, so the 2001 estimates should not be compared with the 1990 to 1996 estimates.

[357]See John Ruser, Adrienne Pilot, and Charles Nelson, "Alternative Measures of Household Income: BEA Personal Income, CPS Money Income, and Beyond," Paper prepared for presentation to the Federal Economic Statistics Advisory Committee (FESAC), December 14, 2004; and for the SIPP, personal communication from staff

undercount is likely due to the fact that the SIPP makes no imputation adjustment for missing interest income.)

The 1990–1996 benchmark comparisons are based on a full-scale analysis of the NIPAs' data. The benchmark data for 2001 are not; instead, they are based on SPI data provided by the Census Bureau. Although the 1990–1996 comparisons and the 2001 comparisons are not directly comparable, we think they reflect the trend accurately. The NIPAs' benchmark figures come from a study in which survey-specific comparisons were made after adjusting for the differences between the SIPP and the CPS (for example, adjustments for survey timing and decedents). Although the SPI data have been prepared for comparability only with the CPS, and not with the SIPP, the differences between the CPS and the SIPP, as isolated to adjust the NIPAs, are very small compared to the differences between the survey's findings and the administrative benchmarks. Thus, we feel quite comfortable with these comparisons.

Although the CPS also undercounts income data, it provides a more complete picture of income than does the SIPP. In most cases, its undercounts are less severe than the SIPP's, which grow more serious over time. In 1990, compared to the NIPAs, the CPS undercounted 11 percent of aggregate income, compared to the SIPP undercount of 13 percent. In 1996, the CPS undercounted 7 percent of aggregate income, compared to the SIPP undercount of 14 percent. Although based on a different methodology and therefore not exactly comparable to earlier years, our 2001 comparisons show the same pattern. In 2001, compared to the SPI data, the CPS undercounted aggregate income by 11 percent, compared to the SIPP undercount of 21 percent.

As we show in table A5, from 1990 to 1996, the CPS undercounts relative to the benchmark data are in most instances significantly lower than the SIPP's undercounts. In addition, the SIPP's undercounts tend to grow more serious over time, even relative to those in the CPS.[358] As a percentage of the NIPAs' benchmark data, the CPS counts of aggregate income rose from about 89 percent in 1990 to about 93 percent in 1996. Over the same time period, the SIPP's count declined from about 87 percent in 1990 to about 86 percent in 1996.

Similarly, the CPS count of government transfer income remained nearly constant at about 88 percent in 1990 and in 1996, while the SIPP count declined from about 92 percent in 1990 to about 86 percent in 1996. Much of the decline in the SIPP's count of aggregate transfer income relative to the benchmark is attributable to a severe decline in its count of Social Security income. Although the CPS count of Social Security income rose from about 91 percent in 1990 to about 92 percent in 1996, the SIPP's count fell from about 97 percent in 1990 to about 88 percent in 1996. Not all income categories fit this pattern. In 1996, the SIPP had a more

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of the Longitudinal Income Statistics Branch, U.S. Census Bureau, to the authors, based on unpublished data from the 2001 Survey of Income and Program Participation (SIPP).

[358]The SIPP misses a significant proportion of property income because no post-imputation adjustment is made for interest income (such an adjustment is made in the CPS), so the SIPP property income estimates should not be compared to the CPS.

complete reporting of income than the CPS for several income types: Supplemental Security Income (101 percent vs. 84 percent), family assistance (76 percent vs. 68 percent), other cash welfare (114 percent vs. 81 percent), and pensions (86 percent vs. 77 percent). Nevertheless, the SIPP's undercount relative to the overall benchmark is more severe than that of the CPS, and increasingly so over time.

Table A6 contains similar comparisons of income data for 2001 in the CPS and the SIPP relative to the SPI. Although these comparisons are based on a different methodology and therefore not exactly comparable to those from earlier years, our 2001 comparisons show the same pattern.[359] As a percentage of the SPI benchmark data for 2001, the CPS found about 89 percent of aggregate income, compared to about 79 percent in the SIPP. For earnings, the CPS found about 92 percent of the benchmark, compared to the SIPP's 81 percent.[360] The counts were much closer for government transfers, with the CPS finding about 81 percent, and the SIPP finding about 79 percent.[361] (Because of data incompatibility, we do not compare undercounts of property income between the SIPP and CPS.)[362] We also do not have separate data on pension income for 2001 and, thus, make no comparison for that income category.)

[359]The 1990 to 1996 data are based on comparisons to the NIPAs, which have been adjusted for universe and conceptual differences with the survey estimates. The 2001 data are based on the SPI, the data from which have not been adjusted for universe and conceptual differences with the survey estimates. This exaggerates the observed differences between the SPI aggregates and the survey estimates, so the 2001 estimates should not be compared with the 1990 to 1996 estimates.

[360]The definition of earnings in the SIPP is complicated by the fact that self-employment income is based on sub-annual salary or draw, and not a net profit or loss as in the CPS.

[361]Within the government transfer category, the SIPP has a more complete reporting of income maintenance than does the CPS (77 percent vs. 58 percent).

[362]The SIPP misses a significant proportion of property income because no post-imputation adjustment is made for interest income (such an adjustment is made in the CPS), so the SIPP's property income estimates should not be compared to those in the CPS.

Table A5. March CPS and SIPP Aggregate Income as a Percentage of Benchmark Data (1990, 1993, and 1996)

	CPS			SIPP		
	1990	**1993**	**1996**	**1990**	**1993**	**1996**
Earnings	93.0%	94.8%	96.1%	89.6%	87.4%	88.4%
Wage and salary	95.9%	99.7%	101.9%	90.1%	89.0%	91.0%
Self-employment	68.5%	58.9%	52.6%	85.1%	76.2%	69.1%
Property	62.8%	69.8%	70.9%	65.3%	77.0%	56.6%
Interest	67.1%	79.7%	83.8%	56.7%	62.1%	50.2%
Dividends	40.9%	54.3%	59.4%	65.8%	95.9%	51.0%
Rent and royalties	85.0%	65.2%	58.6%	113.1%	91.2%	82.0%
Transfers	87.6%	85.6%	88.3%	92.0%	89.4%	86.3%
Social Security and Railroad Retirement	90.6%	87.8%	91.7%	97.1%	92.7%	87.9%
Income maintenance	-	-	-	-	-	-
SSI	78.9%	84.2%	84.2%	83.1%	82.9%	101.4%
Family assistance	74.4%	76.4%	67.7%	75.6%	89.1%	76.3%
Other cash welfare	85.6%	101.3%	80.5%	81.9%	96.6%	114.0%
Unemployment compensation	79.9%	77.6%	81.6%	77.5%	86.3%	69.4%
Worker's compensation	89.5%	77.0%	62.7%	67.8%	59.2%	71.7%
Veterans' payments	73.9%	85.5%	89.6%	83.1%	77.5%	72.9%
Pensions	88.9%	83.6%	76.6%	84.6%	88.2%	86.1%
Private pensions	98.3%	98.8%	93.1%	91.8%	96.9%	98.1%
Federal employee pensions	82.7%	82.7%	80.8%	75.9%	86.3%	75.6%
Military retirement	85.6%	71.7%	58.2%	87.4%	87.3%	101.6%
State and local employee pensions	78.7%	66.7%	57.3%	76.8%	76.6%	67.8%
Other retirement and disability	-	-	-	-	-	-
Total	89.3%	91.7%	92.6%	87.1%	86.9%	85.7%

Sources: For 1990–1996, Marc I. Roemer, "Assessing the Quality of the March Current Population Survey and the Survey of Income and Program Participation Income Estimates, 1990–1996" (Washington, DC: U.S. Census Bureau, June 16, 2000), tables 2 to 7 and tables A to T, http://www.census.gov/hhes/www/income/assess1.pdf (accessed March 22, 2006).

Note: The benchmark data for 1990–1996 are from the National Income and Product Accounts (NIPAs). The SIPP missed a significant proportion of property income because no post-imputation adjustment is made for interest income (such an adjustment is made in the CPS), so the SIPP's property income estimates should not be compared to those in the CPS.

Table A6. March CPS and SIPP Aggregate Income as a Percentage of Benchmark Data (2001)

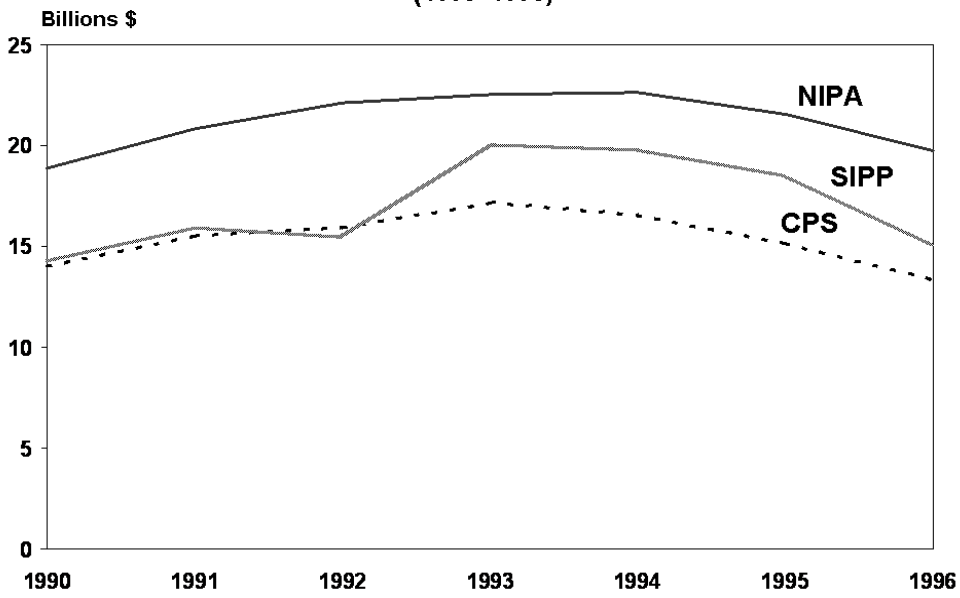
	CPS	SIPP
	2001	2001
Earnings	92.0%	81.1%
Wage and salary	96.9%	-
Self-employment	52.1%	-
Property	71.7%	46.7%
Interest	72.6%	39.1%
Dividends	59.2%	42.0%
Rent and royalties	99.6%	92.1%
Transfers	81.2%	79.0%
Social Security and Railroad Retirement	88.4%	84.7%
Income maintenance	58.0%	77.4%
SSI	-	-
Family assistance	-	-
Other cash welfare	-	-
Unemployment compensation	71.0%	55.3%
Worker's compensation	36.8%	30.7%
Veterans' payments	-	-
Pensions	-	-
Private pensions	-	-
Federal employee pensions	-	-
Military retirement	-	-
State and local employee pensions	-	-
Other retirement and disability	70.4%	79.5%
Total	88.9%	78.6%

Sources: For 2001, John Ruser, Adrienne Pilot, and Charles Nelson, "Alternative Measures of Household Income: BEA Personal Income, CPS Money Income, and Beyond," Paper prepared for presentation to the Federal Economic Statistics Advisory Committee (FESAC), December 14, 2004; and calculations of staff in the Longitudinal Income Statistics Branch, U.S. Census Bureau, based on unpublished data from the 2001 Survey of Income and Program Participation (SIPP).

Note: The benchmark data for 2001 are from the State Personal Income (SPI) of the Bureau of Economic Analysis (BEA). The SIPP missed a significant proportion of property income because no post-imputation adjustment is made for interest income (such an adjustment is made in the CPS), so the SIPP's property income estimates should not be compared to those in the CPS.

The ratio of the SIPP estimates of welfare (AFDC/TANF) benefits to those from the NIPAs fluctuated from 70 to 90 percent, with an average of 80 percent. V. Joseph Hotz, professor of economics at the University of California at Los Angeles, and John Karl Scholz, professor of economics and director of the Institute for Research on Poverty at the University of Wisconsin–Madison, observe: between 1990 and 1996, "the SIPP appears to capture only about three-quarters of aggregate benefits [of AFDC/TANF]."[363] Figure 3 illustrates the total AFDC/TANF income estimated by the NIPAs, the March CPS, and the SIPP, respectively, between 1990 and 1996. It shows that the SIPP estimates of the amount of AFDC/TANF benefits were consistently lower than the benchmark by $2.5 billion to $5 billion dollars. The gap narrowed in 1993–1995, but again expanded in 1996. (See figure 3.)

Figure 3.
Aggregate AFDC/TANF Income: NIPA vs. SIPP and CPS Estimates
(1990–1996)



Source: Authors' calculation based on Marc I. Roemer, "Assessing the Quality of the March Current Population Survey and the Survey of Income and Program Participation Income Estimates, 1990–1996" (Washington, DC: U.S. Census Bureau, 2000), tables 2a, 2b, 3a, and 3b, pp. 44–47, http://www.census.gov/hhes/www/income/assess1.pdf (accessed December 14, 2001).

[363]V. Joseph Hotz and John Karl Scholz, "Measuring Employment and Income for Low-Income Populations with Administrative and Survey Data," Institute for Research on Poverty Discussion Paper 1224-01, National Academy of Sciences, 2001, p. 10, available from http://www.ssc.wisc.edu/irp/pubs/dp122401.pdf, accessed December 14, 2001.

Poverty: The Census Bureau did not publish the annual poverty rate from the 1995 SIPP, but in 1994, compared to the CPS—the official source for poverty estimates—the SIPP missed 13 percent of the people who were in poverty. The SIPP missed about 9 percent of the people in poverty in 1996,[364] about 14 percent in 1997,[365] and about 15 percent in 1999 (for all waves in that calendar year).

Compared to the CPS, the SIPP consistently undercounts the number of people in poverty. Prior to 1992, poverty rates in the SIPP were 20 to 25 percent lower than in the CPS, a difference of about 8 million poor people.[366] According to Enrique Lamas, Jan Tin, and Judith Eargle, the poverty rates measured from the CPS and the SIPP were: about 14 percent versus about 12 percent in 1984, about 14 percent versus about 11 percent in 1985, about 14 percent versus about 10 in 1990, and about 14 percent versus about 11 percent in 1991 (see table A6).[367]

From 1993 to 1999, the gap of the poverty rates between the SIPP and the CPS narrowed. However, except in 1996, the poverty rate in the SIPP was still about 15 percent lower than that in the CPS. (See table A6.) It is unclear why the poverty rate in the SIPP was so much lower than that in the CPS. Lamas, Tin, and Eargle estimate that attrition in the SIPP and methodological differences[368] between the CPS and the SIPP accounted for roughly one-third of the difference in

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[364]Authors' calculation based on U.S. Census Bureau, "Historical Poverty Tables – People" (Washington, DC: U.S. Census Bureau, October 2003), table 2, "Poverty Status of People by Family Relationship, Race, and Hispanic Origin: 1959 to 2002," available from: http://www.census.gov/hhes/poverty/histpov/perindex.html, accessed February 16, 2004; Mary Naifeh, "Dynamics of Economic Well-Being, Poverty 1993–94: Trap Door? Revolving Door? Or Both," *Current Population Reports*, P70–63 (Washington, DC: U.S. Census Bureau, July 1998), figure 1a. "Selected Poverty Rates: 1993 and 1994," p. 1, available from: http://www.bls.census.gov/sipp/p70s/p70-63.pdf, accessed February 16, 2004; and, John Iceland, "Dynamics of Economic Well-Being: Poverty 1996–1999," *Current Population Reports*, P70–91 (Washington, DC: U.S. Census Bureau, July 2003), figure 1, "Selected Poverty Rates: 1996–1999," p. 3, available from: http://www.bls.census.gov/sipp/p70s/p70-91.pdf, accessed February 16, 2004.

[365]Authors' calculation based on U.S. Census Bureau, "Historical Poverty Tables – People" (Washington, DC: U.S. Census Bureau, October 2003), table 2, "Poverty Status of People by Family Relationship, Race, and Hispanic Origin: 1959 to 2002,"available from: http://www.census.gov/hhes/poverty/histpov/perindex.html, accessed February 16, 2004; and, John Iceland, Dynamics of Economic Well-Being: Poverty 1996–1999, *Current Population Reports*, P70–91 (Washington, DC: U.S. Census Bureau, July 2003), figure 1, "Selected Poverty Rates: 1996–1999," p. 3, available from: http://www.bls.census.gov/sipp/p70s/p70-91.pdf, accessed February 16, 2004.

[366]U.S. Census Bureau, *Survey of Income and Program Participation Users' Guide*, Third Edition (Washington, DC: U.S. Census Bureau, 2001), p. 6-4, available from: http://www.sipp.census.gov/sipp/usrguide/sipp2001.pdf, accessed November 21, 2001.

[367]U.S. Census Bureau, "The SIPP Quality Profile 1998," SIPP Working Paper No. 230, U.S. Census Bureau, 1998, table 10.7, p. 134, available from: http://www.sipp.census.gov/sipp/workpapr/wp230.pdf, accessed November 21, 2001.

[368]According to Enrique Lamas, Jan Tin, and Judith Eargle, four major methodological differences between the SIPP and the CPS might have led to some differences in poverty measures. First, in the CPS, data on household composition are fixed for March, and data on income are for the previous year. In the SIPP, data on both household

poverty rates between the two surveys in 1991 (attrition accounted for one-sixth, and methodological differences accounted for one-sixth).[369] Two-thirds of the difference was still unaccounted for.

As discussed above, a likely explanation for the SIPP's underestimate of the number of people in poverty is its biased sample, resulting from undercoverage and high nonresponse and attrition rates for women of child-bearing age (eighteen to thirty-nine years old), minorities, and low-income persons. These groups tend to have high poverty rates, and their underrepresentation in the SIPP could have biased poverty rates downwards.

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composition and income are on a monthly basis. Second, the CPS allows for negative self-employment income, but the SIPP does not allow for it. Third, the SIPP data on program participation and means-tested cash income are based on the "reference period," whereas the CPS data were for the previous year. Fourth, the SIPP and the CPS use different weighing procedures. However, Lamas and his colleagues found that these methodological differences accounted for only one-sixth difference in poverty rates between the two surveys. See Enrique Lamas, Jan Tin, and Judith Eargle, "The Effect of Attrition on Income and Poverty Estimates from the Survey of Income and Program Participation (SIPP)," SIPP Working Paper No. 190, U.S. Census Bureau, 1994, available from: http://www.sipp.census.gov/sipp/wp190.pdf, accessed November 21, 2001.

[369]Enrique Lamas, Jan Tin, and Judith Eargle, "The Effect of Attrition on Income and Poverty Estimates from the Survey of Income and Program Participation (SIPP)," SIPP Working Paper No. 190, U.S. Census Bureau, 1994, p. 16, available from: http://www.sipp.census.gov/sipp/wp190.pdf, accessed November 21, 2001.

Table A6.
Persons Below Poverty: CPS and SIPP (1984, 1985, 1990, 1991, 1993, 1994, 1996, 1997, 1998, and 1999)

Characteristics	1984		1985		1990		1991		1993		1994		1996		1997		1998		1999	
	CPS	SIPP	CPS	SIPP	CPS	SIPP	CPS	SIPP	CPS	SIPP	CPS	SIPP	CPS	SIPP	CPS	SIPP	CPS	SIPP	CPS	SIPP
All persons	14.4	11.5	14.0	11.0	13.5	10.1	14.2	10.6	15.1	12.9	14.5	12.6	13.7	12.5	13.3	11.4	12.7	10.5	11.9	10.1
Sex																				
Male	12.8	10.0	12.3	9.4	11.7	8.2	12.3	8.9	13.3	-	12.8	-	12.0	-	11.6	-	11.1	-	10.4	-
Female	15.9	12.9	15.6	12.4	15.2	11.9	16.0	12.2	16.9	-	16.3	-	15.4	-	14.9	-	14.3	-	13.2	-
Race/ethnicity																				
White	11.5	8.7	11.4	8.5	10.7	7.5	11.3	8.1	9.9	-	9.4	-	8.6	-	8.6	-	8.2	-	7.7	-
Black	33.8	30.4	31.3	28.3	31.9	27.0	32.7	27.1	33.1	-	30.6	-	28.4	-	26.5	-	26.1	-	23.6	-
Hispanic	28.4	24.6	29.0	22.6	28.1	21.2	28.7	24.7	30.6	-	30.7	-	29.4	-	27.1	-	25.6	-	22.7	-
Age																				
Under 18	21.5	17.8	20.7	16.9	20.6	16.8	21.8	17.2	22.7	-	21.8	-	20.5	-	19.9	-	18.9	-	17.1	-
18 to 64	11.7	8.8	11.3	8.4	10.7	7.7	11.4	8.3	12.4	-	11.9	-	11.4	-	10.9	-	10.5	-	10.1	-
65 and over	12.4	10.8	12.6	10.9	12.2	8.1	12.4	8.5	12.2	-	11.7	-	10.8	-	10.5	-	10.5	-	9.7	-

Sources: For 1984–1991, U.S. Census Bureau, "The SIPP Quality Profile 1998," SIPP Working Paper No. 230, U.S. Census Bureau, 1998, table 10.7. "Percent of persons below poverty based on data from the CPS and SIPP, 1984, 1985, 1990, and 1991," p. 134, available from: http://www.sipp.census.gov/sipp/workpapr/wp230.pdf, accessed November 21, 2001; for CPS 1993–1999, U.S. Census Bureau, *Historical Poverty Tables - People* (Washington, DC: U.S. Census Bureau, October 2003), table 2, table 3 and table 7, "Poverty Status of People by Family Relationship, Race, and Hispanic Origin: 1959 to 2002," "Poverty Status of People, by Age, Race, and Hispanic Origin: 1959 to 2002," and "Poverty of People, by Sex: 1966 to 2002," available from: http://www.census.gov/hhes/poverty/histpov/perindex.html, accessed February 4, 2004; For SIPP 1993-1994, Mary Naifeh, "Dynamics of Economic Well-Being, Poverty 1993-94: Trap Door? Revolving Door? Or Both," *Current Population Reports*, P70-63 (Washington, DC: U.S. Census Bureau, July 1998), figure 1a. "Selected Poverty Rates: 1993 and 1994," p. 1, available from: http://www.bls.census.gov/sipp/p70s/p70–63.pdf, accessed February 4, 2004; and for the SIPP 1996–1999, John Iceland, "Dynamics of Economic Well-Being: Poverty 1996-1999," *Current Population Reports*, P70-91 (Washington, DC: U.S. Census Bureau, July 2003), figure 1. "Selected Poverty Rates: 1996-1999," p. 3, available from: http://www.bls.census.gov/sipp/p70s/p70–91.pdf, accessed February 4, 2004.

The 1996 SIPP redesign oversampled households in poor neighborhoods, which increased estimated poverty rates but makes cross-year comparisons uncertain. As part of the 1996 SIPP redesign, the Census Bureau oversampled households of the "high poverty stratum"[370] at a rate of 1.7 to 1,[371] because the statistical adjustments to the SIPP data (such as weighting and imputation) had apparently failed to raise the poverty level in the SIPP compared to that in the CPS. The oversampling resulted in a change in the composition of the sample by increasing the proportion of poor persons and decreasing the proportion of well-off persons. The Census Bureau reports the effects of oversampling on the SIPP's effective sample size:

> At the household level, there is a 3 percent increase in the effective sample size for households in poverty below 150 percent of the poverty level, a 17 percent increase for black households in poverty, and a 12 percent increase for Hispanic households in poverty. At the person level, the corresponding percentages are a 4 percent increase in persons in poverty, a 16 percent increase in black persons in poverty, and a 10 percent increase in Hispanic persons in poverty. The losses are in the high-income households. For households with income above $75,000, the effective sample size is reduced by 11 percent. The effective sample size for persons [age] 55 and over is also reduced by 7 percent.[372]

As a result of this oversampling, the estimated poverty rates in the 1996 SIPP Panel (for 1996, 1997, 1998, and 1999) came closer to those in the CPS.

The oversampling of potentially poor persons may have improved SIPP's poverty estimates, but it also made cross-year comparisons related to poverty quite problematic, because the difference in the poverty rates between the 1996 panel and previous SIPP panels may have been a largely artificial result of the redesign, rather than a real socioeconomic change.

Welfare and food stamp receipt: In 1995, the SIPP's count of welfare recipients was close to administrative figures, overstating the number of welfare recipients by only about 3

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[370]According to the Census Bureau, "If the 1990 household had any one of the following characteristics, the housing unit is assigned to the high poverty stratum:

1. Female householder with children under 18 and no spouse present
2. Living in a central city of a Metropolitan Statistical Area (MSA) and renter with rent less than $300
3. Black householder and living in a central city of an MSA
4. Hispanic householder and living in a central city of an MSA
5. Black householder and householder less than age 18 or greater than age 64
6. Hispanic householder and householder less than age 18 or greater than age 64."

See U.S. Census Bureau, "SIPP Quality Profile 1998," SIPP Working Paper No. 230, U.S. Census Bureau, 1998, p. 152, available from: http://www.sipp.census.gov/sipp/workpapr/wp230.pdf, accessed November 21, 2001.

[371]U.S. Census Bureau,"SIPP Quality Profile 1998," SIPP Working Paper No. 230, U.S. Census Bureau, 1998, p. 152, available from: http://www.sipp.census.gov/sipp/workpapr/wp230.pdf, accessed November 21, 2001.

[372]U.S. Census Bureau, "SIPP Quality Profile 1998," SIPP Working Paper No. 230, U.S. Census Bureau, 1998, p. 152, available from: http://www.sipp.census.gov/sipp/workpapr/wp230.pdf, accessed November 21, 2001.

percent. The SIPP undercounted food stamp recipients by 10 percent in 1995. In later years, however, the SIPP developed a large undercount of welfare recipients and its undercount of food stamp recipients remained. The SIPP missed 12 percent of welfare recipients and 15 percent of food stamp recipients in 1997, and 28 percent of welfare recipients and 12 percent of food stamp recipients in 1999 (for all waves in that calendar year).

The SIPP's count of welfare recipients should be higher than those in the HHS administrative records, because the SIPP figures included both AFDC/TANF and General Assistance (GA) recipients, whereas the HHS figures included only AFDC/TANF recipients.

Between 1993 and 1995, the SIPP overcounted about 3 percent of welfare recipients. In 1993, the SIPP reported about 14.7 million of welfare recipients, 3 percent higher than HHS reported (14.2 million). In 1994, the SIPP reported about 14.4 million of welfare recipients, 2 percent higher than HHS reported (14.2 million). In 1995, the SIPP reported about 13.8 million of welfare recipients, 3 percent higher than HHS reported (13.4 million). (See table A7.)

Between 1996 and 1999, the SIPP missed increasingly more welfare recipients, from a 12 percent undercount in 1996 to a 28 percent of undercount in 1999. In 1996, the SIPP reported about 10.8 million welfare recipients, at least 12 percent lower than HHS reported (12.3 million). In 1997, the SIPP reported about 9.2 million welfare recipients, at least 12 percent lower than HHS reported (10.4 million). In 1998, the SIPP reported about 7 million welfare recipients, at least 16 percent lower than HHS reported (8.3 million). And in 1999, the SIPP reported about 4.9 million welfare recipients, about 28 percent lower than HHS reported (6.9 million).[373]

Between 1993 and 1999, the SIPP figures of food stamp recipients also deteriorated, from a 5 percent undercount to a 12 percent undercount, when compared to USDA administrative records.

Why the greater apparent undercounts of welfare recipients? One possibility is respondent confusion. After welfare reform in 1996, public assistance (the old Aid to Families with Dependent Children) was called by different names in different states. Although the SIPP made an effort to refer to the program by its proper name in each state, the respondents may not have known the local name for TANF/welfare.

A more likely explanation is that people tend to receive food stamps for a longer period of time than they receive public assistance, so they may be more likely to remember and report food stamp recipiency in the SIPP. A study by the HHS Assistant Secretary for Planning and

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[373]Authors' calculation based on U.S. Department of Health and Human Services, Administration for Children and Families, "Aid to Families with Dependent Children (AFDC) and Temporary Assistance for Needy Families (TANF), Average Monthly Families and Recipients for CALENDAR YEARS 1936 – 2001," available from: http://www.acf.dhhs.gov/news/stats/3697.htm, accessed February 9, 2004; and U.S. Census Bureau, "Dynamics of Economic Well-Being: Program Participation 1996 to 1999, Who Gets Assistance?" *Current Population Reports*, P70–94, tables A-2, available from: http://www.census.gov/prod/2003pubs/p70-94.pdf, accessed February 16, 2004.

Evaluation (ASPE) on TANF leavers, applicants, and caseloads in several states found that a high percentage of people who left TANF were still receiving food stamps long afterwards.[374] For example, of the people who left TANF between 1998 and 1999, more than half were still receiving food stamps a full year later in Wisconsin (63 percent), South Carolina (61 percent), and Iowa (56 percent).

[374]Gregory Acs and Pamela Loprest, "Final Synthesis Report of Findings from ASPE 'Leavers' Grants" (Washington, DC: U.S. Department of Human Services, Office of the Assistant Secretary for Planning and Evaluation, November 27, 2001), Appendix B, table IV.3,
"Percent of Single-Parent Leavers Receiving Food Stamps- Administrative Data."

Table A7.
Welfare and Food Stamp Recipients: SIPP vs. Administrative Records (1993-1999)

Year	Welfare Recipients			Food Stamp Recipients		
	Average monthly		SIPP as percent of HHS	Average monthly		SIPP as percent of USDA
	HHS	SIPP		USDA	SIPP	
1993	14,205,484	14,675,000	103.3%	26,982,000	25,713,000	95.3%
1994	14,160,920	14,438,000	102.0%	27,468,000	25,383,000	92.4%
1995	13,418,386	13,755,000	102.5%	26,619,000	24,072,000	90.4%
1996	12,320,970	10,838,000	88.0%	25,542,000	21,788,000	85.3%
1997	10,375,993	9,171,000	88.4%	22,858,000	19,505,000	85.3%
1998	8,347,136	7,021,000	84.1%	19,788,000	17,345,000	87.7%
1999	6,874,471	4,936,000	71.8%	18,183,000	16,001,000	88.0%

Source: For the SIPP, U.S. Census Bureau, "Dynamics of Economic Well-Being: Program Participation 1993 to 1995, Who Gets Assistance?" *Current Population Reports*, P70–77 (Washington, DC: U.S. Census Bureau, September 2001), tables A-2 and A-4, available from: http://www.bls.census.gov/sipp/p70s/p70-77.pdf, accessed February 9, 2004, and U.S. Census Bureau, "Dynamics of Economic Well-Being: Program Participation 1993 to 1995, Who Gets Assistance?" *Current Population Reports*, P70–94, tables A-2 and A-4, available from: http://www.census.gov/prod/2003pubs/p70-94.pdf, accessed February 9, 2004.
For HHS on welfare recipients, U.S. Department of Health and Human Services, Administration for Children and Families, "Aid to Families with Dependent Children (AFDC) and Temporary Assistance for Needy Families (TANF), Average Monthly Families and Recipients for CALENDAR YEARS 1936 – 2001," available from: http://www.acf.dhhs.gov/news/stats/3697.htm, accessed February 9, 2004.
For USDA record on food stamp recipients, U.S. Department of Agriculture, Food and Nutrition Service, "Food Stamp Program Participation and Costs (Data as of January 23, 2004)," available from: http://www.fns.usda.gov/pd/fssummar.htm, accessed February 9, 2004.