

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

*Inaccuracies and Corrections*

Douglas J. Besharov  
Jeffrey S. Morrow  
Anne Fengyan Shi

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# Contents

|  |     |
|--|-----|
| Executive Summary .....                                    | i   |
| Introduction .....   | 1   |
| About the SIPP .....                                       | 3   |
| The SIPP's child care module .....                         | 4   |
| The SIPP's general data problems .....                     | 5   |
| Benchmarking .....   | 8   |
| Terminology and usage .....                                | 9   |
| Head Start Miscounts .....                                 | 11  |
| Enrollment .....   | 11  |
| Age distribution .....                                     | 23  |
| Race and ethnicity .....                                   | 30  |
| Income distribution .....                                  | 34  |
| Center-Based Care Miscounts .....                          | 39  |
| Nursery and preschool .....                                | 39  |
| Day care and other center-based care .....                 | 52  |
| School Miscounts .....                                     | 63  |
| Kindergarten or school .....                               | 63  |
| Age shifting .....   | 69  |
| Other Data Inaccuracies .....                              | 76  |
| "Regular" arrangements .....                               | 76  |
| Subsidies .....  | 85  |
| Paying parents .....                                       | 90  |
| Parental expenditures .....                                | 93  |
| Problems with Published Reports .....                      | 102 |
| Definitions of preschooler and gradeschooler .....         | 102 |
| Confidence intervals/Standard errors .....                 | 107 |
| Cross-year comparisons .....                               | 108 |
| Changes in countable child care .....                      | 109 |
| Changes in the number of arrangements counted .....        | 112 |
| Changes in recording parents' work and school status ..... | 112 |
| Changes in the list of child care arrangements .....       | 113 |
| Changes in the sequence of child care arrangements .....   | 115 |
| Changes in the age groups examined .....                   | 116 |
| Changes in timing of the module .....                      | 119 |
| Out-of-date reports .....                                  | 124 |

|  |     |
|--|-----|
| Conclusion and Recommendations .....   | 125 |
| Appendices .....   | 130 |
| A-1. Comparison of National Child Care Surveys .....                                     | 131 |
| A-2. The SIPP's General Problems .....   | 140 |
| Measurement error .....  | 140 |
| Proxy responders .....   | 142 |
| Biased sample .....  | 144 |
| Undercoverage .....  | 145 |
| Nonresponse and attrition .....  | 148 |
| Nonresponse .....  | 148 |
| Uncertain weighting .....  | 157 |
| Income .....   | 158 |
| Poverty .....  | 167 |
| Welfare and food stamp receipt .....   | 170 |
| A-3. Selected Publications Using the SIPP Child Care Module as a Major Data Source ..... | 174 |

# Executive Summary

The Survey of Income and Program Participation (SIPP) is the federal government's major source of information about the patterns and cost of child care, and is the most widely used tool for assessing government child care policies, especially for low-income families. The other major national surveys are: the U.S. Department of Education's National Household Education Survey (NHES), the Urban Institute's National Survey of America's Families (NSAF), the National Study of Child Care for Low-Income Families derived from the Community Survey (CS), and the U.S. Census Bureau's October School Enrollment Supplement to the Current Population Survey (CPS). (See box 2. Each survey is briefly summarized in Appendix 1.)

In developing our "Early Education/Child Care (ee/cc) Model," we needed detailed demographic data on working mothers (and their children) and the child care arrangements they used. After reviewing the other major surveys, we decided to use the SIPP child care module because it seemed to provide the most comprehensive information about the child care arrangements of low-income families after welfare reform.

Unfortunately, we found that the SIPP's child care data has numerous inaccuracies and deficiencies, as described in this report, which make it largely unusable for most analyses.

**About the SIPP.** In 1983, the Census Bureau started the SIPP to collect data on the income and participation in government transfer programs of households and individuals. The SIPP's main purpose is "to provide accurate and comprehensive information about the income and program participation of individuals and households in the United States, and about the principal determinants of income and program participation."

The SIPP is a longitudinal survey designed as a continuous series of national panels. The SIPP questionnaire for each panel includes the basic "core" questionnaire and specific "topical modules." The core questions are repeated in each wave, while the topical modules vary from wave to wave. The "core" survey includes information on income, labor force participation, welfare receipt, family structure and living arrangements, as well as other characteristics.

The topical modules cover many subjects including child care; child support; education; employment; family and household characteristics and living conditions; health, disability and physical well-being (adult well-being, children's well-being, health and disability, health care, medical expense and work disability, work disability history, etc.); financial issues (annual income and retirement accounts, assets and liabilities, real estate property and vehicles, pension plan coverage, tax, etc.); and welfare benefits and services (eligibility for and reciprocity of public assistance, benefit amounts, job search and training assistance, job subsidies,

transportation assistance, health care, food assistance, electronic transfer of benefits, and denial of benefits, etc.).

**The SIPP's child care module.** Since 1984, the Census Bureau has conducted nineteen SIPP child care modules, providing putatively comprehensive data on child care utilization and payment patterns for children from birth to age fourteen. Between the 1993 and 1996 SIPP panels, the child care module was expanded by including additional questions on the cost of child care for each arrangement, and the addition of questions on the receipt of government assistance for child care. While broadening the module, the additional questions also increased respondent burden, and raised the cost of administering the survey.

The SIPP's child care module now examines all child care arrangements for children from birth to age fourteen, collecting information on caretakers, and the type, location, hours, and cost of care. In addition, as mentioned above, the child care module can be linked with the SIPP's core survey and longitudinal files, which then provides substantial information about the children's family structure, their socioeconomic background, and their parents' work and public assistance status. Under the title of "Who's Minding the Kids? Child Care Arrangements," the bureau has periodically published survey findings as a part of its series called "Household Economic Studies."

**The SIPP's general data problems.** A number of researchers from a wide range of organizations have found significant problems with various aspects of the SIPP, including biased undercoverage, high nonresponse, significant attrition, weighting and imputation biases, and inconsistencies across panels due to changes in the design of the SIPP sample and questionnaire. These and other problems undercut the SIPP's validity, resulting, for example, in inaccurate income estimates<sup>1</sup> and underrepresentation of minority and low-income persons.

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<sup>1</sup>See 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," Working Paper No. 215, U.S. Census Bureau, July 1996, available from: <http://www.sipp.census.gov/sipp/wp215.pdf>, accessed December 23, 2004; Marc I. Roemer, "Assessing the Quality of the March Current Population Survey and the Survey of Income and Program Participation Income Estimates," Working Paper, U.S. Census Bureau, June 2000, available from: <http://www.census.gov/hhes/www/income/assess1.pdf>, accessed December 23, 2004; Pat Doyle, Betsy Martin, and Jeff Moore, "The Survey of Income and Program Participation (SIPP) Methods Panel: Improving Income Measurement," Working Paper No. 234, U.S. Census Bureau, November 2000, available from: <http://www.census.gov/dusd/MAB/wp234.pdf>, accessed December 23, 2004; Roberto Pedace and Nancy Bates, "Using Administrative Records to Assess Earnings Reporting Error in the Survey of Income and Program Participation," *Journal of Economic and Social Measurement*, Vol. 26, No. 3-4, 2001; Minh Huynh, Kalman Rupp, and James Sears, "The Assessment of the Survey of Income and Program Participation (SIPP) Benefit Data Using Longitudinal Administrative Records," Working Paper No. 238, U.S. Census Bureau, undated, available from: <http://www.sipp.census.gov/sipp/workpapr/wp238.pdf>, accessed December 23, 2004; and Pat Doyle, "AAPOR Roundtable: Income Measurement," Working Paper No. 241, U.S. Census Bureau, undated, available from: <http://www.sipp.census.gov/sipp/workpapr/wp241.pdf>, accessed December 23, 2004.

A Census Bureau report, *The SIPP Quality Profile 1998*,<sup>2</sup> evaluates several dimensions of the quality of SIPP data from the 1984 to 1993 panels, based on a number of evaluation studies. It points out the following weaknesses: compared to independent sources, in 1990, the SIPP underestimated wage and salary income (by 8 percent), self-employment earnings (by 22 percent), property income such as interest and dividends (by about 50 percent), unemployment compensation (by 16 percent), veterans' payments (by 16 percent), and public assistance income (by 30 percent). A more recent evaluation study by the Census Bureau's Marc I. Roemer indicates that the underestimation of income in the SIPP continued between 1990 and 1996: compared to independent sources, in 1996, the SIPP underestimated income from earnings (by 12 percent), from property income (by 43 percent), from welfare (by 24 percent), and from pensions (by 14 percent).<sup>3</sup> As of this writing, no studies evaluating the 2001 SIPP panel had been published. Our own analysis of the 2001 SIPP data, however, shows that these undercounts have generally grown.

**Benchmarking.** Given our concerns over data quality in the SIPP, we sought to gauge its accuracy by comparing it to other data sets. In benchmarking the SIPP's child care data against what we determine to be more reliable data sets, we discovered serious problems in the child care module. This paper describes in detail these benchmark comparisons and the magnitude of the SIPP's miscounts.

In several instances, we benchmark the SIPP against administrative data. Administrative data are often more reliable than survey data because they do not suffer from the types of error common in sample surveys. Not all administrative data, however, are directly comparable to the SIPP. Hence, every effort has been made in this paper to select the benchmark data and, where necessary, to adjust it for comparability with the SIPP. For example, when comparing the SIPP's Head Start enrollment count with administrative data from the *Head Start Program Information Report* (PIR), we use the end-of-month enrollment for the month closest to the SIPP's survey period. Although the PIR provides several different types of enrollment counts (discussed in detail below), the selection of that particular count helps to maximize compatibility between the SIPP and the benchmark data.

## Head Start Miscounts

**Enrollment.** *Compared to benchmark data, the 1995 SIPP provided a roughly accurate count of the number of children in Head Start, exceeding the administrative count by only 8 percent. The 1997 SIPP, however, undercounted the number of children by about 60 percent;*

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<sup>2</sup>See U.S. Census Bureau, *The SIPP Quality Profile 1998*, Third Edition, SIPP Working Paper No. 230, U.S. Census Bureau, 1998, available from: <http://www.sipp.census.gov/sipp/workpapr/wp230.pdf>, accessed November 21, 2001.

<sup>3</sup>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 May 31, 2005.

and both the 1999 and 2002 SIPPs undercounted the number of children in Head Start by about 77 percent.

**Age distribution.** *Compared to benchmark data, the SIPP's age estimates have been wildly incorrect, reporting 200 percent more children age five and over for 1995, 533 percent more for 1997, and 880 percent more for 1999. The 2002 SIPP's estimate, though improved, remained problematic, reporting 440 percent more children five and over than the PIR.*

**Race and ethnicity.** *Compared to benchmark data, the SIPP overstated the proportion of white children by 22 percent for 1995; by 32 percent for 1997, by 74 percent for 1999, and by 72 percent for 2002. Conversely, the SIPP understated the proportion of Hispanic children: by 36 percent for 1995, by 41 percent for 1997, by 54 percent in 1999, and by 29 percent in 2002.*

**Income distribution.** *Compared to benchmark data, the SIPP overstated the proportion of nonpoor children in Head Start by 12 percent for 1995, by 35 percent for 1997, and by 67 percent for 1999. Although we do not have benchmark data for 2002, the SIPP's count of nonpoor children in Head Start that year was about 15 percent lower than the 1999 SIPP's count, but still about 5 percent higher than the 1997 SIPP's count. Thus, unless the income distribution of Head Start changed dramatically between 1999 and 2002, the 2002 SIPP still significantly overstated the proportion of nonpoor children in Head Start.*

### Center-Based Care Miscounts

**Nursery and preschool.** *Compared to benchmark data, the 1995 SIPP missed only about 11 percent of the children who were in nursery or preschool (0.43 million children). But the 1997 SIPP missed about 56 percent (about 1.99 million children) and the 1999 SIPP missed about 63 percent (2.45 million children), and the 2002 SIPP missed about 58 percent (2.03 million children).*

**Day care and other center-based care.** *Compared to benchmark data, the 1997 SIPP missed about 30 percent of the preschoolers with employed mothers who used some form of center-based child care (called "organized care facility" or "organized care" by the SIPP), a category which includes day care centers, Head Start, nursery, and preschool; for those under 200 percent of poverty, it missed by about 40 percent. It appears that these undercounts reflect the undercounts of children in Head Start, nursery, and preschool. We have not calculated the similar estimates for the other years.*

### School Miscounts

**Kindergarten or school.** *Compared to benchmark data, the SIPP provides a generally accurate count of children six years old or older in kindergarten or school. The SIPP's count of children under six, however, suffers from miscounts similar to those we find in other areas. Following the usual pattern, the 1995 SIPP is the most reliable, counting about 90 percent of the three- and four-year-olds who were in kindergarten or school (probably first grade). The*



*1997 SIPP, however, overcounts three- and four-year-olds in kindergarten or school by 88 percent, and at the same time misses about 23 percent of the five-year-olds. The 1999 SIPP overcounts three- and four-year-olds in kindergarten or school by 166 percent, and the 2002 SIPP overcounts such children by 153 percent.*

**Age shifting.** *The serious age shifting problem that was caused by the timing of the 1997 and 1999 SIPPs contributed to undercounts of children in Head Start and nursery/preschool, reduced the count of five-year-olds in kindergarten or school by roughly two-thirds, and distorted the estimated pattern of child care arrangements, particularly for children under age six. Although the 2002 SIPP—which was conducted two months earlier in the year than the 1997 and 1999 SIPPs—shows slight improvement in the accuracy of some of its estimates, age shifting still seems to contribute to an undercount of roughly half of the five-year-olds in kindergarten.*

### **Other Data Inaccuracies**

**“Regular” arrangements.** *Although there are no benchmark data, it appears that, after 1995, the SIPP substantially overstates the number of children with no “regular” child care arrangement. In fact, the very concept seems wrongly defined and applied. As asked, the question seems to include children whose arrangement changed during a month, so that they actually had two regular arrangements in the same month. The better approach is to consider these children in some specific arrangement and to distribute them in accordance with general patterns.*

**Subsidies.** *Compared to benchmark data, the 1997 SIPP missed at least 41 percent of the children who received child care subsidies and the 1999 SIPP missed at least 47 percent of the children who received child care subsidies (above and beyond the uncounted children in Head Start). The 2002 SIPP missed at least 42 percent of such children. (The Census Bureau did not ask about subsidies in 1995.)*

**Paying parents.** *Compared to benchmark data, the SIPP consistently undercounted the proportion of families who pay for child care. The 1997 SIPP undercounted the proportion of families with working mothers that paid for child care by about 10 percent. The 1999 SIPP undercount was about 12 percent. Among families with working mothers and incomes at or above 200 percent of poverty, the SIPP’s figure for both 1997 and 1999 was 9 percent lower than the benchmark data. The SIPP’s undercount was significantly worse among families with working mothers and incomes below 200 percent of poverty, with an undercount of about 17 percent in 1997 and 23 percent in 1999. (We do not have benchmark data for 1995 or 2002.)*

**Parental expenditures.** *The SIPP also consistently overstated the weekly child care expenditures of families with working mothers who pay for child care. Compared to the benchmark data, the 1997 SIPP overstated the child care expenditures of families that paid for child care by about 12 percent. The 1999 SIPP overstated this amount by 13 percent. Among families at or above 200 percent of poverty, the SIPP overstated child care expenditures by 8 percent for 1997 and 6 percent for 1999. Among families below 200 percent of poverty, the*

*SIPP's overstatement of child care expenditures was significantly worse, at about 21 percent for 1997 and 31 percent for 1999. (We do not have benchmark data for 1995 or 2002, and, thus, we make no comparison for those two years.)*

### **Problems with Published Reports**

**Definitions of preschooler and gradeschooler.** *The SIPP reports present child care data as either "preschooler" or "gradeschooler" data. The former category includes children younger than five, the latter includes children ages five to fourteen, regardless of school-enrollment status. This division obscures problems with the age division in the questionnaire, fails to reflect the real-world division between preschool-age and grade-school-age children, and results in the misclassification of many five-year-olds as school-age, even if they were not yet five years old the beginning of the school year. In the 1997 and 1999 SIPP, at least two-thirds of five-year-old preschoolers are misclassified as school-age children.*

**Confidence intervals/Standard errors.** *Although the sample size of small subgroups within the SIPP raises concerns about sampling errors, the Census Bureau's publications on child care rarely provide information on the confidence intervals and standard errors.*

**Cross-year comparisons.** *Between 1993 and 1995, and again between 1995 and 1997, key elements of SIPP's questionnaire and survey methodology were changed, so that comparisons of SIPP findings over time are problematic, at best, and should be made only after comparing the specific wording and order of the questions involved and the time of year that the survey was fielded.*

**Out-of-date reports.** *As of June 2005, the latest Census Bureau report on child care was for the 1997 SIPP, and was published in 2002 (five years later). Data for the 1999 SIPP were not published until 2003 (four years later), and no report has been issued. The report for the 2002 SIPP was not published until October 2005 (more than three years later).*

### **The SIPP's General Problems**

**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).*

**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.*

**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.

**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.)*

**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).*

**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.*

*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.*

*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.*

*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, about 14 percent in 1997, and about 15 percent in 1999 (for all waves in that calendar year).*

*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 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).*

## **Conclusion and Recommendations**

Because of the wide range of problems associated with the SIPP's child care data, there should be a top-to-bottom re-examination of how child care data are collected, processed, and presented by the Census Bureau. Fundamental changes are required to bring the SIPP into alignment with other survey and administrative data sources. By documenting and elucidating these problems, we hope that we will encourage this process.

We shared this report with the Census Bureau staff and asked them how they thought a survey that seeks to accomplish the SIPP child care module's purposes should be conducted. We received the following response from the Census Bureau, through Martin O'Connell, chief of the Census Bureau's Fertility and Family Statistics Branch. Because of the importance and saliency of this response, we reproduce the Census Bureau's recommendations here in their entirety.

**Box 1**  
**Rethinking the Collection of Child Care Data**  
**U.S. Census Bureau (2006)**

Two general areas of consideration for improving child care surveys are operational and content. Operational issues cover the broad area of survey administration, how the survey is designed and the season of the year that the survey is in the field. Content issues cover which questions to include in surveys, how they are asked and formatted, and problems involved in collecting detailed information in omnibus surveys such as those conducted by federal agencies.

**Operational**

**Seasonality.** Child care arrangements will vary considerably throughout the year. Arrangements used and available during the school year will differ from those in the summer months. If the goal of the study is to provide information on arrangements used during the school year, then collecting data in the Fall is the optimal time for collection as the age of the child at that time of the year will more closely reflect his/her age at the beginning of the school year.

Children often are admitted to school-based programs depending on their age at the beginning of a term rather than their age after a term begins. For example, a child age 5 in August may be of age for admission into a pre-school or kindergarten program for the rest of the Fall and Spring term, but a child only turning age 5 in March or April (when SIPP child care surveys have taken place) may not be eligible for current enrollment as of the survey interview date as he or she needed to be of a minimum age at an earlier date.

However, there is still value in conducting child care surveys at different times of the year in order to obtain a more complete picture of arrangements throughout the year. One must be sure that any analysis points out the discontinuities from survey to survey and does not attempt to equate the arrangements used by a 5 year old in April with the same child care openings that a 5-year old faced in September.

**Survey context.** Just as different seasons of the year provide a different frame of reference for the analysis of arrangement data, so does the overall context of the survey that contains the child care questions. Government surveys, as well as many private surveys, are general purpose or omnibus surveys that contain numerous topics that may or may not be related to child care issues. Competing for space or time on a longitudinal survey instrument used by many federal agencies may affect the consistency in the (1) content of the questions, (2) the way the questions are asked, (3) the survey universe for the questions, and (4) the placement of the questions on the panel in terms of duration of time since the panel began.

From an analytical perspective, it is important that child care questions be included on surveys that have sufficient economic and program participation content to enable the researcher to utilize the child care data to answer policy issues.

Questions asked in a different context may yield different answers. A survey that begins and continues in length as a very detailed labor force survey with child care questions at the very end (such as SIPP) may place the respondent in a different frame of mind from one that is primarily concerned with children's issues and has only a few income questions at the very end.

Even within a child care module in a survey, the initial wording of a child care arrangements question may trigger a pre-conceived set of responses of what is meant by the phrase "child care." When asked about possible child care arrangements, the respondent may not consider school teachers, basketball coaches, art instructors, and scout leaders as child care providers, even though potential

*Martin O'Connell, chief, Fertility and Family Statistics Branch, Population Division, U.S. Census Bureau*

responses such as school attendance, sports activities, lessons, and clubs are offered to the respondent. If one really seeks to find the number of children engaging in activities that are not traditionally thought of as child care arrangements, then it may take an entirely different set of questions to correctly obtain these estimates than in a section of a questionnaire focused on child care questions.

Child care modules on longitudinal surveys may suffer from being placed on interview rounds far from the initial interview, thus producing sample losses that may create biases in the remaining sample. It is important, then, to consider the placement of the child care items both in the overall context of the survey panel, and also at the point asked within that panel.

**Administration.** Because child care data are collected in considerable detail—for example, hours in use, costs of care—it is important that the parent of the child is the primary provider of the answers. For many surveys, in order to reduce repeated attempts to contact respondents and to minimize travel time and distance, a “household proxy” often provides survey answers. While attempts are usually made to secure this information from the parent, collection of the data from people other than the child’s parent, or even the parent not actively involved in securing the child care services, may produce either erroneous answers or high levels of nonresponse to items. Every effort should be made to secure this information from the parent.

In addition, the recording of child care arrangements on a survey is often accomplished by reciting to the respondent a long list of potential providers. Different response patterns may arise if the respondent visually examines the potential list rather than listening to a long list over the telephone or even in person. Response patterns to certain arrangements may suffer if they are placed at the end of the list or if previous categories seem to capture the desired response. For example, a respondent answering that their child is in preschool may then preclude a further response that their child is in a Head Start program—they may feel that they have already answered this question in the affirmative and that a further response would be redundant. More effort should be placed on examining the shadow effects that question and category placement may have on responses.

## Content

The child care questions cover a wide variety of topics. Generally, the modules begin with a listing of the types of arrangements—sometimes the primary and sometimes all arrangements that are used. Further questions include the hours used by each child for each arrangement, and subsequent details on costs and assistance received if any. Occasionally, questions are asked about satisfaction with the arrangements, time lost from work because of failures in child care arrangements, and if any children are usually left in self-care even for a small number of hours each week. Obviously, the number of questions asked of each respondent increases geometrically with the number of children and the number of arrangements used by each child. This proves to be a very taxing amount of detailed information required from the respondent, especially if the respondent is a household proxy and is answering for someone else in the household.

**Arrangements and hours.** It is important to note that tabulations used in reports or analysis are often based on “derived” answers instead of “simple” answers. For example, many analysts create tables showing the primary arrangement. Usually, this is a derived answer by finding the arrangement used by each child for the greatest number of hours per week. Sometimes, ties in hours are produced or arrangements are given but the estimate for the number of hours used is not provided. In those cases, allocation schemes are used to impute the number of hours and then the hours are compared among the other possible arrangements—which also may be imputed. This being said, questionnaires which go this more detailed route risk higher individual nonresponse rates and may not be as accurate as an answer to a single question about the primary arrangement the respondent usually uses. One may get less detail from the single question but the quality of the single response may be better than the derived response.

**Child care costs and subsidies.** A similar situation arises in the case of child care costs. Summing the individual costs of each arrangement for each child to produce a total household expenditure,

instead of asking a simple global question of total weekly costs for all children in the family, involves aggregating many different responses, all of which have different response variation and nuances. Before asking the child care cost question, one has to determine what will be the use of the item in the ensuing analysis. The more detail that is collected, the greater the likelihood that the aggregate amounts will consist of more individually allocated components.

Asking about subsidies to child care arrangements may also be problematic. In a household population survey, people may know only what they pay, not what they do not pay. Subsidies may be in the form of vouchers but they may be also in the form of reduced rates. If a respondent pays for an arrangement, they may not know that they are receiving a reduced rate or even if they do, the actual amount. This could produce discrepancies with administrative or firm records on amounts charged and received. This problem could be compounded in the case of a household proxy answering this question. Cognitive research would have to be done to see how people interpret the meaning of subsidy or assistance. It should not be surprising if child care costs or subsidy answers reported by child care centers or institutions would differ from that reported by the respondent. If this administrative information is truly desired, more effort should focus on the use of administrative records to link the respondents and associated costs, especially in the case of people enrolled in benefit programs.

**Self-care.** Self-care arrangements may be difficult to estimate because of the sensitivity of the question—it is a reflection of parental concern and in most governmental districts there are legal issues concerning leaving children unattended. But there is the more difficult issue of identifying self-care situations or establishing a common definition. For example, does a child sitting alone in a playground constitute a self-care situation while a child playing with a friend in a playground with a park official on the premises not constitute a self-care situation? And how does the parent know if the park official is attentive or if the friend is always present? Again, more research should be placed on the formation of this question and the quality of the responses derived from the answers.

Other topics, such as asking people if they use “licensed” child care providers may yield questionable responses if a negative response may be seen on the part of the respondent as providing second class caretakers for their children.

**Subjective questions.** Questions about personal feelings about child care quality, problems with arrangements, and even time lost from work can be fairly subjective and are definitely not answerable by a household proxy. They probably do not belong in large omnibus surveys but rather in more focused surveys that have more leeway for in-depth answers requiring further explanations other than an answer that scales these responses on a one to ten basis.

### Overall Recommendations

Summarizing, several suggestions can be offered to improve the quality of answers and responses to child care questions on large federal surveys.

1. Attempt to place child care surveys in the months closest to the Fall as “age of child” issues may restrict or limit child care or schooling arrangements for periods beyond the interview month.
2. Limit the questions to those actually needed for specific programs. Reducing the number of questions on omnibus surveys which accept household proxy answers will go a long way towards improving responses.
3. Do not attempt to use child care responses as substitutes for official enrollment figures, such as in schools or Head Start programs. Program data or specialized surveys are better designed to produce these estimates.

4. Whenever possible, use the simple question approach instead of the complex question approach—this will minimize problems associated with nonresponse and reduce the variance on the responses.
5. Decide if collecting child care data for only the primary or secondary arrangement will suffice, and if the data are needed for all children or only focal children.
6. Try to incorporate the use of administrative records for program enrollment and child care costs and subsidies.
7. If there are especially important arrangements to investigate that are not usually considered as child care arrangements, construct the questionnaire to highlight those responses instead of having them placed in a long list of child care alternatives. Dissociate these questions from the context of child care arrangements to avoid confusion.



# Introduction

The Survey of Income and Program Participation (SIPP) is the federal government's major source of information about the patterns and cost of child care, and is the most widely used tool for assessing government child care policies, especially for low-income families. The other major national surveys are: the U.S. Department of Education's National Household Education Survey (NHES), the Urban Institute's National Survey of America's Families (NSAF), the National Study of Child Care for Low-Income Families derived from the Community Survey (CS), and the U.S. Census Bureau's October School Enrollment Supplement to the Current Population Survey (CPS). (See box 2. Each survey is briefly summarized in Appendix 1.)

In developing our "Early Education/Child Care (ee/cc) Model,"<sup>4</sup> we needed detailed demographic data on working mothers (and their children) and the child care arrangements they used. After reviewing the other major surveys, we decided to use the SIPP child care module because it seemed to provide the most comprehensive information about the child care arrangements of low-income families after welfare reform.

Our intention was to use the SIPP as the source of data for a project on patterns of child care usage and payments. In principle, the SIPP should provide the best data because of its unique strengths:

- The SIPP child care module asks detailed questions about all children in the sampled households, rather than about a limited number of children in each sampled family—as do the NHES, the NSAF, and the CS.
- The SIPP is conducted through in-person interviews, rather than through telephone interviews—as are the NHES, the NSAF, and the CS. (In-person interviews generally produce better quality information than telephone interviews or mail surveys.)
- The SIPP examines all available child care arrangements, also collecting data on where the care takes place, how many hours each child is in each arrangement, and whether and how much families pay for the care. This makes it far more comprehensive than the CPS School Enrollment Supplement, which has basic enrollment information only on preschool, nursery school, and kindergarten; or the NHES and the CS, which exclude parental care as a form of child care.

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<sup>4</sup>University of Maryland, Welfare Reform Academy, "Early Education/Child Care (ee/cc) Model," 2006.

- The SIPP's child care module can be linked to its core survey files, which contain, among other things, detailed information on the children's family structure, their socioeconomic background, and their parents' work and public assistance status.
- Finally, the SIPP covers a relatively long period, having started in 1984.

### Box 2

#### Sources of National Child Care Data

Four national surveys yield most of the information available about child care usage and patterns.

- ***Current Population Survey (CPS) October Supplement of School Enrollment.*** The Census Bureau has collected data on regular school enrollment of the civilian noninstitutional population in the annual October CPS since 1946. The Census Bureau publishes an updated and detailed school enrollment report as part of the *Current Population Reports* series each year. In 1964, the Census Bureau began to include nursery school in the survey. *Regular school* currently includes nursery school, kindergarten, elementary school, high school, college, and professional school. The CPS survey covers children as young as three years old.
- ***National Household Education Survey (NHES).*** Since 1991, the National Center for Education Statistics at the Department of Education has conducted four surveys on nonparental child care in the NHES (in 1991, 1995, 1999, and 2001). Children in the survey are ages three to eight in 1991 and birth to age ten in 1995, 1999, and 2001. The survey on nonparental child care does not cover all children—collecting data on two children at the most in a sampled family. The latest published child care data comes from the 2001 NHES.
- ***National Survey of America's Families (NSAF).*** In 1997, 1999, and 2002, the Urban Institute, a nonprofit research institution, and Westat, a research corporation, collected data on child care and early education in the NSAF. The survey covers children from birth to age twelve. As in the NHES, the NSAF does not cover all children—it covers child care arrangements for one child from birth to age five and/or one child age six to twelve in a sampled household.
- ***Survey of Income and Program Participation (SIPP) Child Care Topical Module.*** In 1984, the Census Bureau started to collect data on child care in the child care topical module of SIPP. SIPP has conducted a total of nineteen surveys on child care arrangements. (See table 14.) The survey covers all children from birth to age fourteen in the sampled households.
- ***Community Survey (CS) of the National Study of Child Care for Low-Income Families.*** Between September 1999 and July 2000, researchers from Abt Associates and the National Center for Children in Poverty, with funding from the Administration for Children and Families, collected data on nonparental child care from twenty-five communities in seventeen states. The CS surveyed families with incomes under 200 percent of poverty, at least one child under age thirteen, and with employed parents working a minimum of twenty hours each week. Although the sample is not meant to be nationally representative, it is designed to represent the communities in which large numbers of low-income children live.

For a detailed comparison of these surveys, see table A-1.

Unfortunately, we found that the SIPP's child care data has numerous inaccuracies and deficiencies, as described in this report, which make it largely unusable for most analyses.

**About the SIPP.** In 1983, the Census Bureau started the SIPP to collect data on the income and participation in government transfer programs of households and individuals. The SIPP's main purpose is "to provide accurate and comprehensive information about the income and program participation of individuals and households in the United States, and about the principal determinants of income and program participation."<sup>5</sup>

The SIPP is a longitudinal survey designed as a continuous series of national panels. Each panel contains a sample of households who are interviewed at four-month intervals during a period of time (ranging from two-and-half years to four years).<sup>6</sup> Prior to the SIPP's 1996 redesign, the SIPP sample size was small (usually below 20,000 households) and the duration of the panel was short (about two-and-half years). A new panel was introduced each year when the previous panel(s) were still on-going. The overlap of multiple SIPP panels during the same period was designed to permit the combination of the data from different panels so that an analytical sample size could be enlarged.

After the SIPP's 1996 redesign, the sample size was increased to 36,700 households and the duration of the panel increased from two-and-half to four years (for the 1996 panel) or three years (for the 2001 panel), with overlapping SIPP panel(s) discontinued.<sup>7</sup>

Each SIPP panel is divided into four roughly equal-sized "rotation groups." Each month, the Census Bureau interviews one of the four rotation groups. The four-month period during which all four rotation groups are interviewed is called a "wave." A new wave (that is, a new round of interviews) starts upon the completion of the previous wave. Thus, each sampled household is interviewed once every four months for the duration of the survey, usually more than two years.<sup>8</sup> SIPP panels have consisted of three (the 1989 SIPP Panel) to thirteen (the 1996 SIPP Panel) waves. Since 1983, thirteen SIPP panels have been assembled, and prior to the 1996 SIPP Panel, many panels overlapped in time. For example, the 1992 SIPP Panel started in

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<sup>5</sup>U.S. Census Bureau, "Overview of the Survey of Income and Program Participation (SIPP)" (Washington, DC: U.S. Census Bureau, undated), available from: <http://www.sipp.census.gov/sipp/overview.html>, accessed May 19, 2005.

<sup>6</sup>U.S. Census Bureau, *Survey of Income and Program Participation Users' Guide*, Third Edition (Washington, DC: U.S. Census Bureau, 2001), pp. 2-1–2-2, available from: <http://www.sipp.census.gov/sipp/usrguide/sipp2001.pdf>, accessed November 21, 2001.

<sup>7</sup>U.S. Census Bureau, *Survey of Income and Program Participation Users' Guide*, Third Edition (Washington, DC: U.S. Census Bureau, 2001), pp. 2-1–2-2, available from: <http://www.sipp.census.gov/sipp/usrguide/sipp2001.pdf>, accessed November 21, 2001.

<sup>8</sup>U.S. Census Bureau, *Survey of Income and Program Participation Users' Guide*, Third Edition (Washington, DC: U.S. Census Bureau, 2001), p. 2-1, available from: <http://www.sipp.census.gov/sipp/usrguide/sipp2001.pdf>, accessed November 21, 2001.

February 1992 and ended in May 1995; the 1993 SIPP Panel started in February 1993 and ended in January 1996. These two panels overlapped during much of their survey periods. The number of households interviewed at the beginning of a panel is its “sample size.”

The SIPP questionnaire for each panel includes the basic “core” questionnaire and specific “topical modules.” The core questions are repeated in each wave, while the topical modules vary from wave to wave. The “core” survey includes information on income, labor force participation, welfare receipt, family structure and living arrangements, as well as other characteristics.

The topical modules cover many subjects including child care; child support; education; employment; family and household characteristics and living conditions; health, disability and physical well-being (adult well-being, children’s well-being, health and disability, health care, medical expense and work disability, work disability history, etc.); financial issues (annual income and retirement accounts, assets and liabilities, real estate property and vehicles, pension plan coverage, tax, etc.); and welfare benefits and services (eligibility for and receipt of public assistance, benefit amounts, job search and training assistance, job subsidies, transportation assistance, health care, food assistance, electronic transfer of benefits, and denial of benefits, etc.).<sup>9</sup>

**The SIPP’s child care module.** Since 1984, the Census Bureau has conducted nineteen SIPP child care modules,<sup>10</sup> providing putatively comprehensive data on child care utilization and payment patterns for children from birth to age fourteen. Between the 1993 and 1996 SIPP panels, the child care module was expanded by including additional questions on the cost of child care for each arrangement, and the addition of questions on the receipt of government assistance for child care. While broadening the module, the additional questions also increased respondent burden, and raised the cost of administering the survey.

The SIPP’s child care module now examines all child care arrangements for children from birth to age fourteen, collecting information on caretakers, and the type, location, hours, and cost of care. In addition, as mentioned above, the child care module can be linked with the SIPP’s core survey and longitudinal files, which then provides substantial information about the children’s family structure, their socioeconomic background, and their parents’ work and public assistance status. Under the title of “Who’s Minding the Kids? Child Care Arrangements,” the bureau has periodically published survey findings as a part of its series called “Household Economic Studies.”

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<sup>9</sup>U.S. Census Bureau, *Survey of Income and Program Participation Users’ Guide*, Third Edition (Washington, DC: U.S. Census Bureau, 2001), pp. 3–8—3–16, available from: <http://www.sipp.census.gov/sipp/usrguide/sipp2001.pdf>, accessed November 21, 2001.

<sup>10</sup>The SIPP panels, waves, and time frames related to child care data are listed in table 14.

To begin our analysis of child care utilization and payment patterns, we first examined the 1996 SIPP Panel Wave 4 child care module, which was conducted in the spring and summer of 1997 (henceforth called the “1997 SIPP” or the “1997 child care module”). In the process of working with this data set, however, we became aware of many data problems, some of them serious. Later, in August 2002, the Census Bureau published its own report on the findings from the 1997 SIPP.<sup>11</sup> The report’s findings are consistent with those from our own analyses of the SIPP data, and they confirm some of the problems we discovered.

The findings from the 1999 SIPP (that is, the 1996 SIPP Panel Wave 10 child care module) were published in January 2003.<sup>12</sup> We found that the 1999 SIPP, which was also conducted in the spring and summer, had similar and sometimes worse problems than the 1997 SIPP. Full data from the 1999 SIPP child care module were released in late 2003 and confirmed our initial assessment. We include an analysis of the 1999 SIPP data in this paper, although we have not conducted our own statistical analysis of the data set.

We also include findings from the 2001 SIPP in this paper where relevant. Near the completion of this paper, in October 2005, the Census Bureau published a report with findings from the 2001 SIPP child care module. Unlike the 1997 and 1999 SIPPs, whose surveys included child care data from the month of June, the 2001 SIPP collected its child care data between February and May 2002. This change is significant because we had originally suspected that the transitional nature of child care arrangements in June may have caused much of the error in the 1997 and 1999 SIPPs. Instead, the problems we discovered in the earlier SIPPs were still present and, in many cases, had worsened.

**The SIPP’s general data problems.** A number of researchers from a wide range of organizations have found significant problems with various aspects of SIPP, including biased undercoverage,<sup>13</sup> high nonresponse,<sup>14</sup> significant attrition,<sup>15</sup> weighting and imputation biases,<sup>16</sup>

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<sup>11</sup>See Kristin Smith, “Who’s Minding the Kids? Child Care Arrangements, Fall 1997,” *Current Population Reports*, P70-86 (Washington, D.C.: U.S. Census Bureau, July 2002), available from: <http://www.census.gov/prod/2002pubs/p70-86.pdf>, accessed April 3, 2003.

<sup>12</sup>See U.S. Census Bureau, “Who’s Minding the Kids? Child Care Arrangements: Spring 1999,” Detailed Tables (Washington, D.C.: U.S. Census Bureau, January 24, 2003), available from: <http://www.census.gov/population/www/socdemo/child/ppl-168.html>, accessed April 3, 2003.

<sup>13</sup>U.S. Census Bureau, “The SIPP Quality Profile 1998,” Third Edition, SIPP Working Paper No. 230, U.S. Census Bureau, 1998, available from: <http://www.sipp.census.gov/sipp/workpapr/wp230.pdf>, accessed November 21, 2001; Gary Shapiro, Gregg Diffendal, and D. Cantor, “Survey Undercoverage: Major Causes and New Estimates for Magnitude,” Paper delivered at the U.S. Bureau of the Census Annual Research Conference, Washington, DC: U.S. Census Bureau, 1993.

<sup>14</sup>See Stephen Mark and Rita Petroni, “Overview of SIPP Nonresponse Research,” Working Paper No. 201, U.S. Census Bureau, September 1994, available from: <http://www.sipp.census.gov/sipp/wp9414.pdf>, accessed December 23, 2004; Mark R. Hendrick, “The Creation and Evaluation of Longitudinal Nonresponse Cells for the 1996 Survey of Income and Program Participation,” presentation at the American Statistical Association, 1996;

and inconsistencies across panels due to changes in the design of the SIPP sample and questionnaire.<sup>17</sup> These and other problems undercut the SIPP's validity, resulting, for example, in inaccurate income estimates<sup>18</sup> and underrepresentation of minority and low-income persons.<sup>19</sup>

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Christopher R. Bollinger and Martin H. David, "Estimation with Response Error and Nonresponse: Food Stamp Participation in SIPP," Working Paper No. 99-13, University of Wisconsin-Madison, Center for Demography and Ecology, 1999; 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; and M. R. Hendrick, K. E. King and J. B. Bienias, "Research on Characteristics of Survey of Income and Program Participation Nonrespondents Using IRS Data," SIPP Working Paper No. 211, U.S. Census Bureau, undated, available from: <http://www.census.gov/dusd/MAB/wp211.pdf>, accessed December 23, 2004.

<sup>15</sup>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, May 1994, available from: <http://www.sipp.census.gov/sipp/wp190.pdf>, accessed November 21, 2001; Jeffrey Zabel, "An Analysis of Attrition in the Panel Study of Income Dynamics and the Survey of Income and Program Participation with an Application to a Model of Labor Market Behavior," *The Journal of Human Resources*, Spring 1998, 33, (2), 479-506; Jan Tin, "Program Participation and Attrition: the Empirical Evidence," SIPP Working Paper No. 222, U.S. Census Bureau, undated, available from: <http://www.census.gov/dusd/MAB/wp222.pdf>, accessed December 23, 2004; Denton Vaughan and Fritz Scheuren, "Longitudinal Attrition in Survey of Income and Program Participation (SIPP) and Survey of Program Dynamics (SPD)," Working Paper No. 242, U.S. Census Bureau, undated, available from: <http://www.census.gov/dusd/MAB/wp242.pdf>, accessed December 23, 2004.

<sup>16</sup>See L. Rizzo, G. Kalton and J.M. Brick, "Weighting Adjustments for Panel Nonresponse in the SIPP," SIPP Working Paper No. 200, U.S. Census Bureau, October 1994, available from: <http://www.census.gov/dusd/MAB/wp200.pdf>, accessed December 23, 2004; Todd R. Williams and Leroy Bailey, "Compensating for Missing Wave Data in the Survey of Income and Program Participation (SIPP)," presentation at the American Statistical Association, 1996; Mark R. Hendrick, "The Creation and Evaluation of Longitudinal Nonresponse Cells for the 1996 Survey of Income and Program Participation," presentation at the American Statistical Association, 1996; and Antionette Tremblay, "Weighting Schemes for Household Panel Surveys," SIPP Working Paper No. 199, U.S. Census Bureau, undated, available from: <http://www.census.gov/dusd/MAB/wp199.pdf>, accessed December 23, 2004.

<sup>17</sup>See Enrique Lamas, Thomas Palumbo and Judith Eargle, "The Effect of the SIPP Redesign on Employment and Earning Data," SIPP Working Paper No. 217, U.S. Census Bureau, August 1996, available from: <http://www.census.gov/dusd/MAB/wp217.pdf>, accessed December 23, 2004; E.C. Hock and F. Winters, "Comparing Certain Effects of Redesign on Data from the Survey of Income and Program Participation," presentation at the 1996 American Statistical Association Meeting, available from: <http://www.census.gov/dusd/MAB/wp226.pdf>, accessed December 23, 2004; and Daniel H. Weinberg, "The Survey of Income and Program Participation - Recent History and Future Developments," SIPP Working Paper No. 232, U.S. Census Bureau, June 2002, available from: <http://www.census.gov/dusd/MAB/wp232.pdf>, accessed December 23, 2004; and Peter H. Siegel and Stephen P. Mack, "Overview of Redesign Methodology for the Survey of Income and Program Participation," SIPP Working Paper No. 210, U.S. Census Bureau, undated, available from: <http://www.census.gov/dusd/MAB/wp210.pdf>, accessed December 23, 2004.

<sup>18</sup>See 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," Working Paper No. 215, U.S. Census Bureau, July 1996, available from: <http://www.sipp.census.gov/sipp/wp215.pdf>, accessed December 23, 2004; Marc I. Roemer, "Assessing the Quality of the March Current Population Survey and the Survey of Income and Program Participation Income Estimates," Working Paper, U.S. Census Bureau, June

A Census Bureau report, *The SIPP Quality Profile 1998*,<sup>20</sup> evaluates several dimensions of the quality of SIPP data from the 1984 to 1993 panels, based on a number of evaluation studies. It points out the following weaknesses: compared to independent sources, in 1990, the SIPP underestimated wage and salary income (by 8 percent), self-employment earnings (by 22 percent), property income such as interest and dividends (by about 50 percent), unemployment compensation (by 16 percent), veterans' payments (by 16 percent), and public assistance income (by 30 percent).<sup>21</sup> A more recent evaluation study by the Census Bureau's Marc I. Roemer indicates that the underestimation of income in the SIPP continued between 1990 and 1996: compared to independent sources, in 1996, the SIPP underestimated income from earnings (by 12 percent), from property income (by 43 percent), from welfare (by 24 percent), and from pensions (by 14 percent).<sup>22</sup> As of this writing, no studies evaluating the 2001 SIPP panel had

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2000, available from: <http://www.census.gov/hhes/www/income/assess1.pdf>, accessed December 23, 2004; Pat Doyle, Betsy Martin, and Jeff Moore, "The Survey of Income and Program Participation (SIPP) Methods Panel: Improving Income Measurement," Working Paper No. 234, U.S. Census Bureau, November 2000, available from: <http://www.census.gov/dusd/MAB/wp234.pdf>, accessed December 23, 2004; Roberto Pedace and Nancy Bates, "Using Administrative Records to Assess Earnings Reporting Error in the Survey of Income and Program Participation," *Journal of Economic and Social Measurement*, Vol. 26, No. 3-4, 2001; Minh Huynh, Kalman Rupp, and James Sears, "The Assessment of the Survey of Income and Program Participation (SIPP) Benefit Data Using Longitudinal Administrative Records," Working Paper No. 238, U.S. Census Bureau, undated, available from: <http://www.sipp.census.gov/sipp/workpapr/wp238.pdf>, accessed December 23, 2004; and Pat Doyle, "AAPOR Roundtable: Income Measurement," Working Paper No. 241, U.S. Census Bureau, undated, available from: <http://www.sipp.census.gov/sipp/workpapr/wp241.pdf>, accessed December 23, 2004.

<sup>19</sup>See Stephen Mark and Rita Petroni, "Overview of SIPP Nonresponse Research," Working Paper No. 201, U.S. Census Bureau, September 1994, available from: <http://www.sipp.census.gov/sipp/wp9414.pdf>, accessed December 23, 2004; Mark R. Hendrick, "The Creation and Evaluation of Longitudinal Nonresponse Cells for the 1996 Survey of Income and Program Participation," presentation at the American Statistical Association, 1996; Christopher R. Bollinger and Martin H. David, "Estimation with Response Error and Nonresponse: Food Stamp Participation in SIPP," Working Paper No. 99-13, University of Wisconsin-Madison, Center for Demography and Ecology, 1999; 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.fcs.m.gov/99papers/mcgovern.pdf>, accessed April 15, 2003; and M. R. Hendrick, K. E. King and J. B. Bienias, "Research on Characteristics of Survey of Income and Program Participation Nonrespondents Using IRS Data," SIPP Working Paper No. 211, U.S. Census Bureau, undated, available from: <http://www.census.gov/dusd/MAB/wp211.pdf>, accessed December 23, 2004.

<sup>20</sup>See U.S. Census Bureau, *The SIPP Quality Profile 1998*, Third Edition, SIPP Working Paper No. 230, U.S. Census Bureau, 1998, available from: <http://www.sipp.census.gov/sipp/workpapr/wp230.pdf>, accessed November 21, 2001.

<sup>21</sup>See U.S. Census Bureau, *The SIPP Quality Profile 1998*, Third Edition, SIPP Working Paper No. 230, U.S. Census Bureau, 1998, pp. 121-139, available from: <http://www.sipp.census.gov/sipp/workpapr/wp230.pdf>, accessed November 21, 2001.

<sup>22</sup>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 May 31, 2005.

been published. Our own analysis of the 2001 SIPP data, however, shows that these undercounts have generally grown. (See Appendix 2.)

**Benchmarking.** Given our concerns over data quality in the SIPP, we sought to gauge its accuracy by comparing it to other data sets. In benchmarking the SIPP’s child care data against what we determine to be more reliable data sets, we discovered serious problems in the child care module. This paper describes in detail these benchmark comparisons and the magnitude of the SIPP’s miscounts.

The data sets against which we benchmark the SIPP include administrative data from the *Head Start Program Information Report* (PIR) of the Department of Health and Human Services (HHS), and from the Child Care Development Fund (CCDF) of HHS’s Child Care Bureau; as well as the following surveys: the National Household Education Survey (NHES), the National Survey of American Families (NSAF) from the Urban Institute, the October School Enrollment Supplement to the Current Population Survey (CPS) from the Census Bureau, the Community Survey of the National Study of Child Care for Low-Income Families (CS) from Abt Associates, Inc. and Columbia University, the Head Start Family and Child Experiences Survey (FACES) from HHS, and the Common Core of Data (CCD) from the Department of Education. In making comparisons, we adjusted the data, as necessary, to produce comparability in demographic subgroups and child care arrangements.

The SIPP undercounts large numbers of the children who are in various child care arrangements—especially Head Start, subsidized child care, children in nursery or preschool, and children in kindergarten or school—and it misleadingly overstates the number of children with no “regular” child care arrangement.<sup>23</sup> We reach this conclusion based on comparisons of SIPP data from 1995, 1997, and 1999 with data from other national surveys and various administrative agencies (what we call “benchmark data”).<sup>24</sup> Based on these comparisons, the SIPP provided roughly accurate data for 1995, but in 1997 and 1999 it substantially undercounted children in various child care arrangements. In most areas, the discrepancies worsened between 1997 and 1999.

A subsequent child care module for the 2001 SIPP was fielded between February and May 2002, the findings from which were published in November 2005. Although we do not analyze the 2001 SIPP in as much depth as we do earlier SIPPs, our review of the published data reveals that the problems described below continue to undermine the data. Where relevant, we compare the findings from the 2001 SIPP to those of previous years.

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<sup>23</sup>“Regular arrangement” is defined as an arrangement that was used “at least once a week during the past month.” See U.S. Census Bureau, “Child Care Topical Module,” available from: [http://www.sipp.census.gov/sipp/top\\_mod/1996/quests/wave4/childcar.htm](http://www.sipp.census.gov/sipp/top_mod/1996/quests/wave4/childcar.htm), accessed December 19, 2000.

<sup>24</sup>The SIPP data that we use are derived from published Census Bureau reports supplemented by our own analysis of the raw data file of the 1997 SIPP child care module, downloaded from the Census Bureau’s ftp site of the Federal Electronic Research and Review Extraction Tool (FERRET), at <ftp://www.sipp.census.gov/pub/sipp/p96puw4.zip>.



In several instances, we benchmark the SIPP against administrative data. Administrative data are often more reliable than survey data because they do not suffer from the types of error common in sample surveys. Not all administrative data, however, are directly comparable to the SIPP. For example, the timing of the administrative data collection may differ from that of the SIPP. O’Connell noted that the Census Bureau records a person’s information at the time of the survey, or in a reference period set at the time of the survey, but that administrative sources often record such information in a variety of ways, including when respondents enter and leave programs, at monthly intervals, or at annual intervals. These potentially divergent approaches can lead to differences between the SIPP and other data sources.<sup>25</sup>

In light of these potential differences, every effort has been made in this paper to select the most appropriate benchmark data and, where necessary, to adjust it for comparability with the SIPP. For example, when comparing the SIPP’s Head Start enrollment count with administrative data from the PIR, we use the end-of-month enrollment for the month closest to the SIPP’s survey period. Although the PIR provides several different types of enrollment counts (discussed in detail below), the selection of that particular count helps to maximize compatibility between the SIPP and the benchmark data.

**Terminology and usage.** Because the SIPP is a longitudinal survey, with a number of waves over a number of years, we adopt the convention of referring to the specific SIPP by the calendar year in which its child care module is fielded. As mentioned above, the child care module of the 1996 SIPP Panel Wave 4 presents data from the spring and summer of 1997. We thus refer to it as “the 1997 SIPP.” Similarly, the 1996 SIPP Panel Wave 10 presents child care data from the spring and summer of 1999. We hereafter refer to it as “the 1999 SIPP.” The 2001 SIPP presents child care data from the winter of 2002. We refer to it as “the 2002 SIPP.”

This paper reports on expenditures over a period of nine years. To help the reader make comparisons across years, all dollar amounts, unless otherwise indicated, are in 2002 dollars.

Also, unless otherwise indicated, the percentages of children in particular arrangements (or in other categorizations) presented in this paper are of all children in any form of child care, including parental, sibling and self-care. Percentages are presented as whole numbers in order to maximize readability and to avoid suggesting a false precision. To maintain consistency with most Census Bureau sources, including publications of the SIPP and the CPS, we round numbers under one million to the nearest thousand. The format for presenting numbers over one million is mixed within the publications of the Census Bureau, as well as in other governmental publications, such as those from the Government Accountability Office and the Congressional Research Service. For the sake of readability and to maintain consistency with the *Chicago*

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<sup>25</sup>Martin O’Connell, U.S. Census Bureau, email message to the authors, February 1, 2005, and a follow-up telephone conversation on June 7, 2005.

*Manual of Style*,<sup>26</sup> we generally present numbers over one million as a numeral with two decimal places, followed by the label “million.” We use two decimal place, rounding to the nearest ten thousand, in order to balance readability with an adequate level of precision. The exception to these rounding guidelines is the presentation of administrative data. Because such data are generally reported as exact counts, we present them without any rounding.

Last, this report uses the term “mother” or “working mother” instead of the more neutral “parents” or “working parents” because, even in our contemporary society, it is usually the mother’s going to work (either in a single-parent or married-couple home) that creates the need for child care. In addition, in single-parent households, the vast majority of parents are mothers.<sup>27</sup>

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<sup>26</sup>*The Chicago Manual of Style*, 15<sup>th</sup> edition (Chicago: the University of Chicago Press, 2003), p. 382, which states: “A mixture of numerals and spelled-out numbers is sometimes used to express very large numbers (in the millions or more), especially when they are fractional.”

<sup>27</sup>Martin O’Connell, U.S. Census Bureau, telephone conversation with the authors, June 28, 2005.

# 1

## Head Start Miscounts

This chapter examines the SIPP child care module's data on children in Head Start. Compared to benchmark data, the SIPP substantially misstates the enrollment, age distribution, race, and family income of Head Start children. The benchmark data come from the *Head Start Program Information Report* (PIR). We are extremely comfortable using it as our benchmark, because it is a carefully maintained administrative data set that closely matches the timing and program definitions used in the SIPP.

**Enrollment.** *Compared to benchmark data, the 1995 SIPP provided a roughly accurate count of the number of children in Head Start, exceeding the administrative count by only 8 percent. The 1997 SIPP, however, undercounted the number of children by about 60 percent; and both the 1999 and 2002 SIPPs undercounted the number of children in Head Start by about 77 percent.*

*SIPP data.* According to the SIPP, in 1995 about 710,000 children were in Head Start.<sup>28</sup> But, again according to the SIPP, the enrollment fell to about 274,000 children in 1997<sup>29</sup> and to about 167,000 children in 1999.<sup>30</sup> In 2002, the SIPP counted only about 200,000 in Head Start.<sup>31</sup>

*Benchmark data.* To assess the accuracy of SIPP's data on Head Start, we compare it to the administrative data contained in the PIR. The PIR has three measures of the Head Start enrollment. Under each measure, enrollment was almost four times higher than the SIPP's counts.

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<sup>28</sup> Kristin Smith, "Who's Minding the Kids? Child Care Arrangements: Fall 1995," *Current Population Reports*, P70-70 (Washington, DC: U.S. Census Bureau, October 2000), p. 12, available from: <http://www.census.gov/prod/2000pubs/p70-70.pdf>, accessed January 19, 2004

<sup>29</sup> Authors' calculation based on U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1997," *Current Population Reports*, P70-86, Detailed Tables (PPL 964) (Washington, DC: U.S. Census Bureau, October 31, 2000), PPL table 1 and table 3, available from: <http://www.census.gov/population/www/socdemo/child/ppl-964.html>, accessed December 29, 2003.

<sup>30</sup> Authors' calculation based on U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1999," Detailed Tables (Washington, DC: U.S. Census Bureau, January 24, 2003), PPL table 1A and table 3A, available from: <http://www.census.gov/population/www/socdemo/child/ppl-168.html>, accessed April 3, 2003.

<sup>31</sup> Authors' calculation based on U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Winter 2002," Detailed Tables (Washington, DC: U.S. Census Bureau, October 2005), PPL tables 1A and table 3A, available from: <http://www.census.gov/population/www/socdemo/child/ppl-177.html>, accessed March 6, 2006.

- “*Funded enrollment*” is the number of slots financed by the program’s annual funding sources (the federal government, states, localities, and other sources). In total, this is Head Start’s theoretical capacity in any particular year. In 1998/1999, the PIR’s total funded enrollment was 812,725 children.<sup>32</sup>
- “*End-of-month enrollment*” is the number of children reported by grantees as enrolled on the last operating day of two or three designated months (in 1998/1999, November, February, and March)—regardless of the funding source.<sup>33</sup> Because of program dropouts

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<sup>32</sup>This number represents total funded enrollment from all sources, including non-ACYF sources that provide about 37,500 additional Head Start slots. See U.S. Department of Health and Human Services, Head Start Bureau, “Head Start Program Information Report for the 1998-1999 Program Year,” (Washington: U.S. Department of Health and Human Services, undated).

One would expect the PIR figure for total enrollment (which includes all sources of funding) to be higher than the Head Start Fact Sheet figure (which is limited to ACF funding), but, at least in 1998/1999, this relationship is reversed (the Fact Sheet counts about 13,000 more children). The explanation may be that in many years during the 1990s and early 2000s, Head Start received funding increases that permitted enrollment increases. Some of the new federal grant awards, reflecting these funding and enrollment increases, were issued after the end of the program year but before the end of the fiscal year (in late summer or September). The total enrollment number reported by the Head Start Fact Sheet is based on the final grant award issued in the fiscal year. Thus, in FY 1998, the final enrollment number reported by the Head Start Fact Sheet (as of September 30, 1999) would pick up the children served by these additional funds, whereas the PIR would not.

<sup>33</sup>The measures of the “end-of-month” enrollment in the PIR have changed over the years. From the 1998/1999 to 2000/2001 program years, the PIR questionnaire required the Head Start grantees to report the end-of-month enrollment figures for these three months (November, February, and March) “except for programs not operating during one or more of these months.” The questionnaire also required: “All programs must report on three months, unless your program did not serve children for three months during the program year. If your program operated less than three months, fill in the average attendance for the months you operated below.” See U.S. Department of Health and Human Services, Administration for Children and Families, *A Look at Head Start* (Washington, DC: U.S. Department of Health and Human Services, undated), Appendix E, p. 130.

For the 2001/2002 and 2002/2003 program years, the PIR questionnaire required the grantees to report “the highest number of children enrolled in any two months during the enrollment year” as the end-of-month enrollment figures; the reported numbers were then averaged in the PIR as for June and April, respectively. See U.S. Department of Health and Human Services, Administration for Children and Families, “Head Start Program Information Report (PIR) for the 2001–2002 Program Year” (Washington, DC: U.S. Department of Health and Human Services, undated); and U.S. Department of Health and Human Services, Head Start Bureau, “Head Start Program Information Report (PIR) for the 2002–2003 Program Year” (Washington, DC: U.S. Department of Health and Human Services, undated).

For the 2003/2004 program year, the PIR questionnaire required the grantees to report “the highest number of children enrolled in any two months during the enrollment year” as the end-of-month enrollment figures; the reported numbers were then averaged in the PIR as for October, February, and April, respectively. See U.S. Department of Health and Human Services, Head Start Bureau, “Head Start Program Information Report (PIR) for the 2003–2004 Program Year” (Washington, DC: U.S. Department of Health and Human Services, undated).

(some of whose slots are not filled), this definition results in a lower count than “funded enrollment.” In 1998/1999, Head Start’s average monthly enrollment was 707,702.<sup>34</sup>

- “*Actual enrollment*,” or, more accurately, “cumulative enrollment,” is the total number of children reported by grantees as enrolled in Head Start at any time during the year (regardless of funding source), even if they dropped out or enrolled late, and even if they attended for only one day. Consequently, this definition results in the highest count of enrolled children. In 1998/1999, Head Start’s cumulative enrollment was 889,910.<sup>35</sup>

Thus, in 1998/1999, depending on the measure used, reported enrollment varied by as many as 182,208 children, or 20 percent.<sup>36</sup> For our comparison, we use end-of-month enrollment because of the three figures, end-of-month enrollment most closely represents an actual monthly enrollment or attendance figure, which would be akin to what the SIPP collects. The end-of-month enrollment figure does not include children enrolled in home-based Head Start programs (approximately 43,851 children in 1998/1999). Because the SIPP also does not include these children, we leave them out of this analysis.

*Comparability.* Besides the usual issues that arise when comparing survey results with administrative data, the main issue in comparing the SIPP and the PIR end-of-month data is the time of year when each takes its count.

The 1995 SIPP collected child care data for the fall (covering September, October, November, and December), whereas the 1997 and 1999 SIPPs collected data for the spring (covering March, April, May, and June). The PIR’s end-of-month data are available for three selected months during the 1995/1996, 1997/1998, and 1998/1999 program years, and for two selected months during the 2001/2002 program year:

- In the 1995/1996 program year, the three months were November 1995, February 1996, and March 1996;
- In the 1996/1997 program year, the three months were November 1996, February 1997, and March 1997;

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<sup>34</sup>U.S. Department of Health and Human Services, Head Start Bureau, “Head Start Program Information Report for the 1998–1999 Program Year,” (Washington: U.S. Department of Health and Human Services, undated). To arrive at an average monthly enrollment figure, we average the end-of-month enrollments reported for November 1998, February 1999, and March 1999 (the only end-of-month enrollment figures reported by the PIR).

<sup>35</sup>Authors’ calculation based on U.S. Department of Health and Human Services, Head Start Bureau, “Head Start Program Information Report for the 1998–1999 Program Year,” (Washington: U.S. Department of Health and Human Services, undated).

<sup>36</sup>For detailed discussion about the three measures of Head Start enrollment, See: Douglas J. Besharov and Jeffrey S. Morrow, “Is Head Start Fully Funded? Income-eligible enrollment, coverage rates, and program implications,” to be published.

- In the 1998/1999 program year, the three months were November 1998, February 1999, and March 1999; and
- In the 2001/2002 program year, the two months were April and June 2001.

To make the SIPP and the PIR as comparable as possible, we chose the PIR data for the month that most closely coincided with the corresponding SIPP's reporting period. Hence, we chose the November 1995 PIR end-of-month enrollment figure to compare with the 1995 SIPP (which collected data for September to December 1995), the March 1997 and 1999 PIR end-of-month enrollment figures to compare with the 1997 and 1999 SIPPs (which collected data for March to June),<sup>37</sup> and the April 2002 PIR end-of-month enrollment figure to compare with the 2002 SIPP.<sup>38</sup>

Even then, however, the PIR and the SIPP are not completely comparable: First, children enrolled in Head Start who attended at least one class a month would be included in the PIR figures, but they might not be included in the SIPP, because the SIPP counted children as being in Head Start only if they attended "at least once a week in the past month." (This is based on the strict definition of "regular arrangement," discussed below.)

Second, the PIR figures include all children in the Head Start program, regardless of the funding source, whereas the SIPP asked whether children were in a "federally funded Head Start program." The practical effect of this difference should be small, however, because in the

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<sup>37</sup>The end-of-month enrollment figures in the PIR are usually about the same in each of the three selected months, usually with a less than 3 percent difference. For example, in the 1996/1997 program year, the highest figure was only 1.3 percent higher than the lowest (670,070 for November and 678,885 for February); in the 1998/1999 program year, the highest figure was 2.8 percent higher than the lowest (696,071 for November and 715,626 for March), and in the 2001/2002 program year, the highest figure was 0.5 percent higher than the lowest (852,401 for April and 848,352 for June). See U.S. Department of Health and Human Services, Head Start Bureau, "Head Start Program Information Report for the 1996–1997 Program Year" (Washington: U.S. Department of Health and Human Services, undated), U.S. Department of Health and Human Services, Head Start Bureau, "Head Start Program Information Report for the 1998–1999 Program Year" (Washington: U.S. Department of Health and Human Services, undated), and U.S. Department of Health and Human Services, Head Start Bureau, "Head Start Program Information Report for the 2001–2002 Program Year" (Washington: U.S. Department of Health and Human Services, undated).

<sup>38</sup>The end-of-month enrollment figures in the PIR are usually about the same in each of the three selected months, usually with a less than 3 percent difference. For example, in the 1996/1997 program year, the highest figure was only 1.3 percent higher than the lowest (670,070 for November and 678,885 for February); and in the 1999 program year, the highest figure was 2.8 percent higher than the lowest (696,071 for November and 715,626 for March). See U.S. Department of Health and Human Services, Head Start Bureau, "Head Start Program Information Report for the 1996–1997 Program Year" (Washington: U.S. Department of Health and Human Services, undated), U.S. Department of Health and Human Services, Head Start Bureau, "Head Start Program Information Report for the 1998–1999 Program Year" (Washington: U.S. Department of Health and Human Services, undated), and U.S. Department of Health and Human Services, Head Start Bureau, "Head Start Program Information Report for the 2001–2002 Program Year" (Washington: U.S. Department of Health and Human Services, undated).

relevant years about 95 percent of Head Start children were in a federally funded Head Start program.<sup>39</sup>

Third, the SIPP data exclude children age six and older who participate in Head Start, whereas the PIR does not, but this number is also not likely to be large. According to the PIR, in June 1999, only about 28,000 Head Start children were age six or older.<sup>40</sup>

As mentioned above, neither the SIPP nor the PIR midyear enrollment figures include children in “home-based” Head Start programs, about 5 percent of the overall enrollment.<sup>41</sup> So that, too, is an issue we need not address.

*Assessment.* For many of the comparisons in this paper, there is at least some question about which data are more accurate. However, in the context of the explanations below, it is impossible that Head Start could have seen its enrollment fall from about 710,000 children in

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<sup>39</sup>Authors’ calculation based on U.S. Department of Health and Human Services, Head Start Bureau, “Head Start Program Information Report (PIR) for the 1997 Program Year” (Washington, DC: U.S. Department of Health and Human Services, undated); U.S. Department of Health and Human Services, Head Start Bureau, “Head Start Program Information Report (PIR) for the 1998-1999 Program Year, Summary Report” (Washington, DC: U.S. Department of Health and Human Services, October 23, 2000), and U.S. Department of Health and Human Services, Head Start Bureau, “Head Start Program Information Report (PIR) for the 2001 Fiscal Year” (Washington, DC: U.S. Department of Health and Human Services, undated).

<sup>40</sup>Authors’ calculation based on U.S. Department of Health and Human Services, Head Start Bureau, “Head Start Program Information Report (PIR) for the 1998–1999 Program Year, Summary Report” (Washington, DC: U.S. Department of Health and Human Services, October 23, 2000). According to the PIR, during the 1998-1999 program year, the “actual enrollment” (or cumulative enrollment) included about 46,742 five-year-olds and 1,584 six-year-olds. The PIR reported children’s age at the time of their enrollment, and the 1999 SIPP reported children’s age as of the reference month (June 1999). Many enrolled five-year-olds might have turned to six between the PIR enrollment period and the SIPP reference month. Assuming all the five-year-old Head Start children were enrolled in September 1998, by June 1999, about two-thirds of them (31,161) would turn six, in addition to the 1,584 original six-year-olds. Further, in the 1998–1999 program year, monthly Head Start enrollment was about 85 percent of actual enrollment. Assuming the monthly enrollment rate was the same for children of each age, the monthly enrollment for children over five would be about 27,834 children.

<sup>41</sup>The PIR “end-of-month enrollment” figures did not report the number of home-based children, but these children represented about 5 percent of all children that had “actually enrolled” in funded Head Start programs in a year.

1995<sup>42</sup> to about 274,000 children in 1997,<sup>43</sup> about 167,000 children in 1999,<sup>44</sup> and about 200,000 children in 2002<sup>45</sup>—especially since it was funded to serve so many more children (902,723 children in the 2001/2002 program year).<sup>46</sup>

There are additional reasons for concluding that the PIR data are more accurate than the SIPP data. First, the PIR collects information directly from *all* Head Start and Early Head Start grantees and delegate agencies annually, whereas the SIPP figures are derived from a severely biased sample of people. Second, the PIR data are collected for the period when the Head Start program is in session, whereas the 1997 and 1999 SIPPs include a transition month (June), in which some parents change the child care arrangements during the month. Third, the PIR end-of-month enrollment figures are close to the funded enrollment figures in each program year, indicating internal consistency. And the PIR enrollment figures show a steady trend growth from year to year, which is consistent with the growth of the Head Start Program in general.

Nevertheless, the PIR data are not perfect. According to the General Accounting Office (GAO), the 2001/2002 PIR enrollment data “contained many inaccuracies.”<sup>47</sup> The GAO report notes that ACF officials used the PIR as a “key source” of the Head Start enrollment data, but they admitted that the PIR “was not necessarily accurate or timely due to the fact that data arrive after the subsequent program year has begun.”<sup>48</sup> Additional sources of the errors cited by the

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<sup>42</sup> Kristin Smith, “Who’s Minding the Kids? Child Care Arrangements: Fall 1995,” *Current Population Reports*, P70–70 (Washington, DC: U.S. Census Bureau, October 2000), p. 12, available from: <http://www.census.gov/prod/2000pubs/p70-70.pdf>, accessed January 19, 2004.

<sup>43</sup> Authors’ calculation based on U.S. Census Bureau, “Who’s Minding the Kids? Child Care Arrangements: Spring 1997,” *Current Population Reports*, P70-86, Detailed Tables (PPL 964) (Washington, DC: U.S. Census Bureau, October 31, 2000), PPL table 1 and table 3, available from: <http://www.census.gov/population/www/socdemo/child/ppl-964.html>, accessed December 29, 2003.

<sup>44</sup> Authors’ calculation based on U.S. Census Bureau, “Who’s Minding the Kids? Child Care Arrangements: Spring 1999,” Detailed Tables (Washington, DC: U.S. Census Bureau, January 24, 2003), PPL table 1A and table 3A, available from: <http://www.census.gov/population/www/socdemo/child/ppl-168.html>, accessed April 3, 2003.

<sup>45</sup> Authors’ calculation based on U.S. Census Bureau, “Who’s Minding the Kids? Child Care Arrangements: Winter 2002,” Detailed Tables (Washington, DC: U.S. Census Bureau, December 2005), PPL tables 1A and 3A, <http://www.census.gov/population/www/socdemo/child/ppl-177.html> (accessed March 22, 2006).

<sup>46</sup> U.S. Department of Health and Human Services, Head Start Bureau, “Head Start Program Information Report (PIR) for the 2001–2002 Program Year, Summary Report” (Washington, DC: U.S. Department of Health and Human Services, October 23, 2000), p. 2.

<sup>47</sup> U.S. General Accounting Office, *Head Start: Better Data and Processes Needed to Monitor Underenrollment*, GAO-04-17 (Washington, DC: U.S. General Accounting Office, 2003), pp. 11–12, available from: <http://www.gao.gov/new.items/d0417.pdf>, accessed August 17, 2005.

<sup>48</sup> U.S. General Accounting Office, *Head Start: Better Data and Processes Needed to Monitor Underenrollment*, GAO-04-17 (Washington, DC: U.S. General Accounting Office, 2003), p. 14, available from: <http://www.gao.gov/new.items/d0417.pdf>, accessed August 17, 2005.



GAO and ACF officials include “typographical errors, failure to report children who were enrolled in the home-based or after-school programs, and reporting on 2 months in which enrollment was not their highest.”<sup>49</sup> These inaccuracies, however, are minor compared to the problems of the SIPP data.

*Miscount.* On the basis of the foregoing, we conclude that the correct benchmark for Head Start enrollment is the March end-of-month enrollment figure, which for 1995 was 658,136 children.<sup>50</sup> Significantly, the 1995 SIPP estimate came quite close to the PIR data, with 710,000 children in the SIPP,<sup>51</sup> an overcount of only about 8 percent. For March 1997, the PIR reported 678,438 children,<sup>52</sup> while the SIPP found only about 274,000 children,<sup>53</sup> a sharp decline resulting in an undercount of 60 percent. For 1999, this undercount increased, with the PIR reporting 715,626 children<sup>54</sup> in Head Start and the SIPP reporting only 167,000,<sup>55</sup> an undercount of 77

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<sup>49</sup>U.S. General Accounting Office, *Head Start: Better Data and Processes Needed to Monitor Underenrollment*, GAO-04-17 (Washington, DC: U.S. General Accounting Office, 2003), p. 14, available from: <http://www.gao.gov/new.items/d0417.pdf>, accessed August 17, 2005.

<sup>50</sup>U.S. Department of Health and Human Services, Head Start Bureau, “Head Start Program Information Report (PIR) for the 1995–1996 Program Year” (Washington, DC: U.S. Department of Health and Human Services, undated).

<sup>51</sup>Kristin Smith, “Who’s Minding the Kids? Child Care Arrangements: Fall 1995,” *Current Population Reports*, P70–70 (Washington, DC: U.S. Census Bureau, October 2000), p. 12, available from: <http://www.census.gov/prod/2000pubs/p70-70.pdf>, accessed January 19, 2004

<sup>52</sup>U.S. Department of Health and Human Services, Head Start Bureau, “Head Start Program Information Report (PIR) for the 1997 Program Year” (Washington, DC: U.S. Department of Health and Human Services, undated); and U.S. Department of Health and Human Services, Head Start Bureau, “Head Start Program Information Report (PIR) for the 1998–1999 Program Year, Summary Report” (Washington, DC: U.S. Department of Health and Human Services, October 23, 2000), table G, “Average Attendance,” p. 4.

<sup>53</sup>Authors’ calculation based on U.S. Census Bureau, “Who’s Minding the Kids? Child Care Arrangements: Spring 1997,” *Current Population Reports*, P70–86, Detailed Tables (PPL 964) (Washington, DC: U.S. Census Bureau, October 31, 2000), PPL table 1 and table 3, available from: <http://www.census.gov/population/www/socdemo/child/ppl-964.html>, accessed December 29, 2003.

<sup>54</sup>U.S. Department of Health and Human Services, Head Start Bureau, “Head Start Program Information Report (PIR) for the 1998–1999 Program Year, Summary Report” (Washington, DC: U.S. Department of Health and Human Services, October 23, 2000).

<sup>55</sup>Authors’ calculation based on U.S. Census Bureau, “Who’s Minding the Kids? Child Care Arrangements: Spring 1999,” Detailed Tables (Washington, DC: U.S. Census Bureau, January 24, 2003), PPL table 1A and table 3A, available from: <http://www.census.gov/population/www/socdemo/child/ppl-168.html>, accessed April 3, 2003.

percent. (See table 1.) For 2002, this undercount was unchanged, with the PIR reporting 852,401 children,<sup>56</sup> while the SIPP found only 200,000,<sup>57</sup> an undercount of 77 percent.

*Explanations.* Some Census Bureau officials believe that the undercount of Head Start children might have resulted from a change in the method of interviewing, from paper questionnaires (prior to 1997) to Computer-Assisted Interviewing (CAI) in 1997, 1999, and 2002. According to Martin O’Connell, chief of the Census Bureau’s Fertility and Family Statistics Branch, Population Division, the 1997 SIPP missed so many Head Start children because, in 1995, it used paper questionnaires that, after going through a list of child care arrangements, asked a separate question that grouped together Head Start, child care/day care centers, and nursery/preschool. Beginning with the 1997 SIPP module, when CAI was initiated, respondents were asked about Head Start as the tenth out of eleven questions in a relatively undifferentiated list of arrangements.

O’Connell says that because of the change in questions, Head Start enrollment was more likely to be reported in the 1995 SIPP module, and more likely to be overlooked and reported as school enrollment in the 1997 SIPP module and later surveys. As evidence, he points to the fact that the total number of children in Head Start and school is roughly similar for 1995 and 1997, as well as in later survey years.<sup>58</sup> We doubt, however, that parents were likely to confuse Head Start with school—to that extent. Head Start was indeed the tenth among the eleven child care arrangements listed in the questionnaire in the 1997 and 1999 SIPPs, but school was not included in the list. Rather, the question on school attendance appeared later in the questionnaire as a separate question.<sup>59</sup>

Others, including Census Bureau staff, have said that the wording used to describe Head Start in the SIPP questionnaire (“federally supported Head Start Program”) may have confused some parents.<sup>60</sup> The argument is that, although most parents probably know that their child is attending a Head Start program (because the word Head Start is usually in its name or the

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<sup>56</sup>U.S. Department of Health and Human Services, Head Start Bureau, “Head Start Program Information Report (PIR) for the 2001–2002 Program Year” (Washington, DC: U.S. Department of Health and Human Services, undated).

<sup>57</sup>Authors’ calculation based on U.S. Census Bureau, “Who’s Minding the Kids? Child Care Arrangements: Winter 2002,” *Current Population Reports*, P70-101, Detailed Tables (PPL 177) (Washington, DC: U.S. Census Bureau, November 9, 2005), PPL table 1A and table 3A, available from: <http://www.census.gov/population/www/socdemo/child/ppl-177.html>, accessed February 27, 2006.

<sup>58</sup>Martin O’Connell, U.S. Census Bureau, email message to authors, February 25, 2005.

<sup>59</sup>U.S. Census Bureau, “Child Care Topical Module,” available from: [http://www.sipp.census.gov/sipp/top\\_mod/1996/quests/wave4/childcar.htm](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](http://www.sipp.census.gov/sipp/top_mod/1996/quests/wave10/childcar.htm), accessed June 8, 2005.

<sup>60</sup>E-mail message from Kristin Smith, U.S. Census Bureau, to Anne F. Shi, April 20, 2001.

materials distributed by it), some parents may not know that the program is “federally supported” (because that is rarely mentioned). The 1995 SIPP, however, used the same wording as the 1997 and 1999 SIPPs, and yet its count of Head Start children was within 8 percent of the administrative totals.

Another possible reason for the 1999 undercount, put forward by Dan T. Rosenbaum and Christopher Ruhm at University of North Carolina at Greensboro, “is due to most Head Start children being counted in some of the other modes of care.”<sup>61</sup> That would mean that the missing Head Start children were misclassified as being in day care centers, pre-schools, or nursery schools. (It is unlikely that they would be misclassified into informal kinds of care because that would require too high a level of confusion.) Although there might have been some misclassification of Head Start children into other types of arrangements, the scale is unlikely to be large, because, as described below, the 1999 SIPP’s estimates of children in day-care centers, nursery and preschool are also lower than other data suggest they should be, and hence, it is unlikely that they are inflated by Head Start children.

We had originally suspected that the inclusion of data from a transition month (June) in the 1997 and 1999 SIPPs might explain much of their undercounts. During June, many children change arrangements, and the SIPP’s question about “regular” arrangements would have excluded children who were in Head Start for only part of the month (until the program closed for the summer). For example, the 1997 SIPP estimate of children who participated in Head Start in June (57,759) was substantially lower than those who participated in March (108,080), and also lower than those who participated in April (66,670) and May (68,398) (See table 2). The 2002 SIPP, however, includes neither a transition month nor a summer month, but had an even larger undercount. Thus, the transition month in the 1997 and 1999 SIPPs cannot account for the missing enrollment.

We believe that there are additional explanations for the substantial undercounts of the Head Start children. The first is the SIPP’s biased sample, discussed below. Because of undercoverage and high nonresponse and attrition rates, the sample is missing a disproportionate number of the families likely to be in Head Start, that is: those headed by single mothers, with low incomes, and disproportionately of racial and ethnic minorities.

Another contributing factor is the timing of the SIPP. The 1995, 1997, 1999, and 2001 SIPP questionnaires use one list of child care arrangements for younger children (ages zero to five) and another for older children (ages six to fourteen). The list of arrangements for older children does not include Head Start. Because six-year-olds are not eligible to enroll in Head Start, this would seem like a reasonable distinction. The 1997, 1999, and 2001 SIPPs, however, measure the child’s age in the late spring or summer. This means that many of the six-year-olds in the SIPP would have been five at the time of school enrollment and, thus, potentially eligible to enroll in Head Start. A respondent for such a six-year-old would not have had the option of

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<sup>61</sup>Dan T. Rosenbaum and Christopher Ruhm, “Caring for Young Children: Inequality in the Cost Burden of Child Care” (Greensboro, NC: University of North Carolina at Greensboro, May 2003), p. 9.

indicating Head Start as a child care arrangement, thus excluding that child from the SIPP's count of Head Start enrollment.

This problem, however, can only partially explain the SIPP's undercount of Head Start enrollment. The Head Start PIR, which reports age at the time of enrollment, reported that only about 5 or 6 percent of Head Start enrollees were age five and over in 1997, 1999, and 2002. Hence, even if all of these children turned six prior to the SIPP, their omission from the Head Start enrollment count would only account for a small portion of the SIPP's undercount, which was 60 percent in 1997 and 77 percent in 1999 and 2002.

It is also possible that the SIPP's high proportion of proxy respondents contributed to the undercounts. As discussed below, more than one third of "designated parents" in the SIPP child care module were proxies (40 percent in the 1995 SIPP, 38 percent in the 1997 SIPP, 30 percent in the 1999 SIPP, and 38 percent in the 2002 SIPP).<sup>62</sup> Many of them may not have known that the children were attending Head Start. Others may have confused Head Start with other center-based programs, such as day care centers and nursery or preschools. This kind of confusion, however, can account for only a very small portion of the undercount for two reasons.

First, as previously mentioned, although this confusion would have the effect of taking children from Head Start and adding them to other center-based care arrangements, the SIPP's estimates of children in other forms of center-based care are also low. Second, the SIPP's undercount grew significantly between 1995 and 1997 and continued to grow through 1999. The rate of proxy response decreased during this time period. In fact, the 1995 SIPP reports the highest levels of proxy response, and yet its count of Head Start children in that year is almost the same as the benchmark data.

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<sup>62</sup>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.

**Table 1.**  
**Children in Head Start: PIR vs. SIPP (1995, 1997, 1999, and 2002)**

| Year | PIR End-of-Month Enrollment | SIPP Attendance | SIPP as Percent of PIR |
|------|-----------------------------|-----------------|------------------------|
| 1995 | 658,136 (November)          | 710,000         | 108%                   |
| 1997 | 678,438 (March)             | 274,000         | 40%                    |
| 1999 | 715,626 (March)             | 167,000         | 23%                    |
| 2002 | 852,401 (April)             | 200,000         | 23%                    |

*Sources:* For Head Start administrative data, U.S. Department of Health and Human Services, Head Start Bureau, “Head Start Program Information Report (PIR) for the 1995–1996 Program Year” (Washington, DC: U.S. Department of Health and Human Services, undated); U.S. Department of Health and Human Services, Head Start Bureau, “Head Start Program Information Report (PIR) for the 1997 Program Year” (Washington, DC: U.S. Department of Health and Human Services, undated); U.S. Department of Health and Human Services, Head Start Bureau, “Head Start Program Information Report (PIR) for 1998–1999 Program Year, Summary Report” (Washington, DC: U.S. Department of Health and Human Services, undated); and U.S. Department of Health and Human Services, Head Start Bureau, “Head Start Program Information Report (PIR) for 2001–2002 Program Year” (Washington, DC: U.S. Department of Health and Human Services, undated).

For the SIPP Head Start data, Kristin Smith, “Who’s Minding the Kids? Child Care Arrangements: Fall 1995,” *Current Population Reports*, P70–70 (Washington, DC: U.S. Census Bureau, October 2000), p. 12, available from: <http://www.census.gov/prod/2000pubs/p70-70.pdf>, accessed January 19, 2004; U.S. Census Bureau, “Who’s Minding the Kids? Child Care Arrangements: Spring 1997,” *Current Population Reports*, P70-86, Detailed Tables (Washington, DC: U.S. Census Bureau, August 1, 2002), PPL table 1 and table 3, available from: <http://www.census.gov/population/www/socdemo/child/ppl-964.html>, accessed January 19, 2004; U.S. Census Bureau, “Who’s Minding the Kids? Child Care Arrangements: Spring 1999,” Detailed Tables (Washington, DC: U.S. Census Bureau, January 24, 2003), PPL tables 1A and table 3A, available from: <http://www.census.gov/population/www/socdemo/child/ppl-168.html>, accessed April 3, 2003; and U.S. Census Bureau, “Who’s Minding the Kids? Child Care Arrangements: Winter 2002,” Detailed Tables (Washington, DC: U.S. Census Bureau, October 2005), PPL tables 1A and table 3A, available from: <http://www.census.gov/population/www/socdemo/child/ppl-177.html>, accessed March 6, 2006.

*Note:* For 1995, the November PIR “end-of-month enrollment” figure is used, because the 1995 SIPP was fielded in the fall. For 1997 and 1999, the March PIR “end-of-month enrollment” figures are used because the 1997 and 1999 SIPPs were fielded in the spring. For 2002, the April PIR “end-of-month enrollment” figure is used because the 2002 SIPP was fielded between February and May.

**Table 2.**  
**Head Start Attendance by SIPP Rotation (1997)**

| Rotation | Month of Survey | Month Surveyed | Head Start Attendance |                      |
|----------|-----------------|----------------|-----------------------|----------------------|
|          |                 |                | Number                | Percent Distribution |
| 1        | April           | March          | 108,080               | 35.9%                |
| 2        | May             | April          | 66,670                | 22.2%                |
| 3        | June            | May            | 68,398                | 22.7%                |
| 4        | July            | June           | 57,759                | 19.2%                |
| All      | All             | All            | 300,907               | 100.0%               |

*Source:* Authors' calculation based on U.S. Census Bureau, 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.

**Age distribution.** *Compared to benchmark data, the SIPP's age estimates have been wildly incorrect, reporting 200 percent more children age five and over for 1995, 533 percent more for 1997, and 880 percent more for 1999. The 2002 SIPP's estimate, though improved, remained problematic, reporting 440 percent more children five and over than the PIR.*

The SIPP's reported age distributions for Head Start children vary widely from administrative data, with the proportion of five-year-olds substantially overstated.

- In 1995, the percentage of Head Start children under three in the SIPP was about 100 percent higher than in the PIR (8 percent compared to 4 percent), the percentage of Head Start children ages three to four was 18 percent lower (74 percent compared to 90 percent), and the percentage of Head Start of children age five and over was 200 percent higher (18 percent compared to 6 percent). (See table 3.)
- In 1997, the percentage of Head Start children under age three in the SIPP was about 200 percent higher than in the PIR (12 percent compared to 4 percent), the percentage of Head Start children ages three to four was 44 percent lower (50 percent compared to 90 percent), and the percentage of Head Start children age five and over was 533 percent higher (38 percent compared to 6 percent). (See table 3.)
- In 1999, the percentage of Head Start children under age three in the SIPP was about 25 percent higher than in the PIR (5 percent compared to 4 percent), the percentage of Head Start children ages three to four was 49 percent lower (46 percent compared to 91 percent), and the percentage of Head Start children age five and over was 880 percent higher (49 percent compared to 5 percent). (See table 3.)
- In 2002, the percentage of Head Start children under age three in the SIPP was about the same as in the PIR (7.5 percent compared to 7.4 percent), the percentage of Head Start children ages three to four was 24 percent lower (66 percent compared to 87 percent), and the percentage of Head Start children age five and over was 440 percent higher (27 percent compared to 5 percent). (See table 3.)

**Table 3.**  
**Children in Head Start by Age: PIR vs. SIPP (1995, 1997, 1999, and 2002)**

| Year and Age of Children | PIR End-of-Month Enrollment |         | SIPP Attendance |         | Difference in Percent Distribution |
|--------------------------|-----------------------------|---------|-----------------|---------|------------------------------------|
|                          | Number                      | Percent | Number          | Percent |                                    |
| 1995                     | (November)                  |         |                 |         |                                    |
| Under 3                  | 26,325                      | 4%      | 56,800          | 8%      | 100%                               |
| 3 and 4                  | 592,322                     | 90%     | 525,200         | 74%     | -18%                               |
| 5 and over               | 39,488                      | 6%      | 128,000         | 18%     | 200%                               |
| Total                    | 658,136                     | 101%    | 710,000         | 100%    | -                                  |
| 1997                     | (March)                     |         |                 |         |                                    |
| Under 3                  | 27,138                      | 4%      | 32,000          | 12%     | 200%                               |
| 3 and 4                  | 610,594                     | 90%     | 136,000         | 50%     | -44%                               |
| 5 and over               | 40,706                      | 6%      | 102,000         | 38%     | 533%                               |
| Total                    | 678,438                     | 100%    | 270,000         | 100%    | -                                  |
| 1999                     | (March)                     |         |                 |         |                                    |
| Under 3                  | 29,151                      | 4%      | 8,016           | 5%      | 25%                                |
| 3 and 4                  | 647,613                     | 91%     | 76,486          | 46%     | -49%                               |
| 5 and over               | 38,862                      | 5%      | 82,498          | 49%     | 880%                               |
| Total                    | 715,626                     | 100%    | 167,000         | 100%    | -                                  |
| 2002                     | (April)                     |         |                 |         |                                    |
| Under 3                  | 63,728                      | 7%      | 15,000          | 8%      | 14%                                |
| 3 and 4                  | 745,307                     | 87%     | 132,000         | 66%     | -24%                               |
| 5 and over               | 43,366                      | 5%      | 53,000          | 27%     | 440%                               |
| Total                    | 852,401                     | 99%     | 200,000         | 101%    | -                                  |



*Sources:* For Head Start administrative data, U.S. Department of Health and Human Services, Head Start Bureau, "Head Start Program Information Report (PIR) for the 1995–1996 Program Year" (Washington, DC: U.S. Department of Health and Human Services, undated); U.S. Department of Health and Human Services, Head Start Bureau, "Head Start Program Information Report (PIR) for the 1997 Program Year" (Washington, DC: U.S. Department of Health and Human Services, undated); U.S. Department of Health and Human Services, Head Start Bureau, "Head Start Program Information Report (PIR) for the 1998–1999 Program Year, Summary Report" (Washington, DC: U.S. Department of Health and Human Services, undated); and U.S. Department of Health and Human Services, Head Start Bureau, "Head Start Program Information Report (PIR) for the 2001–2002 Fiscal Year" (Washington, DC: U.S. Department of Health and Human Services, undated).

For the SIPP Head Start data, Kristin Smith, "Who's Minding the Kids? Child Care Arrangements: Fall 1995," *Current Population Reports*, P70–70 (Washington, DC: U.S. Census Bureau, October 2000), p. 12, available from: <http://www.census.gov/prod/2000pubs/p70-70.pdf>, accessed January 19, 2004; U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1997," *Current Population Reports*, P70-86, Detailed Tables (Washington, DC: U.S. Census Bureau, August 1, 2002), PPL table 1 and table 3, available from: <http://www.census.gov/population/www/socdemo/child/ppl-964.html>, accessed January 19, 2004; U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1999," Detailed Tables (Washington, DC: U.S. Census Bureau, January 24, 2003), PPL tables 1A and table 3A, available from: <http://www.census.gov/population/www/socdemo/child/ppl-168.html>, accessed April 3, 2003; and U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Winter 2002," Detailed Tables (Washington, DC: U.S. Census Bureau, October 2005), PPL tables 1A and table 3A, available from: <http://www.census.gov/population/www/socdemo/child/ppl-177.html>, accessed March 6, 2006.

*Notes:* For 1995, the November PIR "end-of-month enrollment" figure is used, because the 1995 SIPP was fielded in the fall. For 1997 and 1999, the March PIR "end-of-month enrollment" figures are used, because the 1997 and 1999 SIPPs were fielded in the spring. For 2002, the April PIR "end-of-month enrollment" figure is used, because the 2002 SIPP was fielded between February and May. The PIR percent distribution of Head Start children by age was for all children enrolled in a program year. This would not accurately reflect the "end-of-month enrollment" distribution if the turnover rate for children varied by age. However, we do not expect such differences to be large and assume that the overall distribution can be applied to the "end-of-month enrollment" data.

*Explanations.* The most likely explanation is the change in age between the school enrollment period and the SIPP's reference month. The PIR reports the age of children as of the most recent school enrollment period (most likely September),<sup>63</sup> whereas the SIPP reports children's age "as of the fourth month of the reference period,"<sup>64</sup> which was December for 1995, June for 1997 and 1999, and April for 2002.<sup>65</sup> Many children would have turned one year older in the period between the school enrollment period and the SIPP's reference month.

Assuming that children's birthdays are evenly distributed across the twelve months of the year, each month one in every twelve children will turn one year older. Thus, with the passage of each month following the school-enrollment period, an additional one-twelfth of the children turn one year older. In this paper, we call the change in a child's age between the school enrollment period and the month when the child's age is counted in a survey as "age shifting." As a result of age shifting, the average age of children in Head Start increases by about one month with the passing of each month of the program year. On the basis of this estimation, table 4 projects the actual monthly age distribution of the Head Start children after the school enrollment period in the 1995/1996, 1996/1997, 1998/1999, and 2001/2002 school years.

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<sup>63</sup>The Head Start Bureau requires the grantees to "report the age of the child as of the date your local school system uses to determine eligibility for public school" for the PIR report, and it states: "If a child was not age-eligible for kindergarten during this program year, even if the child has turned five by May 2001, count that child as four-years old." (Underline original.) See U.S. Department of Health and Human Services, Head Start Bureau, *Project Head Start, 2000-2001 Program Information Report*, OMB No. 0980-0017 (Washington, DC: U.S. Department of Health and Human Services, 2001), p. 129.

<sup>64</sup>"The reference period" is defined as "the 4-month period preceding the month of the interview for the given wave." For example, the four rotation groups of 1997 SIPP were interviewed from April to July, and therefore the reference period for the 1997 SIPP was from March to June, for which period the information was collected. See U.S. Census Bureau, *Survey of Income and Program Participation Users' Guide*, 3<sup>rd</sup> ed. (Washington, DC: U.S. Census Bureau, 2001), p. 2-3, available from: <http://www.sipp.census.gov/sipp/usrguide/sipp2001.pdf>, accessed February 15, 2004.

<sup>65</sup>The age of a child is defined as: "Age of the . . . child as of the fourth month of the reference period," which was December for the 1995 SIPP, June for the 1997 and 1999 SIPPs, and April for the 2002 SIPP. See U.S. Census Bureau, notes to variables of child's age (ECCADEA, ECCADEB, ECCADEC, ECCADED, ECCADEE, ECCADEF, ECCADEG, ECCADEH, ECCADEI, and ECCADEJ) in *Survey of Income and Program Participation, 1996 Panel Wave 4 Topical Module Data Dictionary* (Washington, DC: U.S. Census Bureau, undated), available from: <ftp://www.sipp.census.gov/pub/sipp/tm96pw4d.asc>, accessed February 15, 2004.

**Table 4.**  
**Projected Actual Age Distribution of Head Start Children by Month: Based on PIR (1995/1996, 1996/1997, 1998/1999, and 2001/2002 School Years)**

| School Year and Age of Children | PIR Age Distribution (Sept.) | Projected Actual Distribution by Month |        |               |        |        |        |               |        |               |
|---------------------------------|------------------------------|--|--------|---------------|--------|--------|--------|---------------|--------|---------------|
|                                 |                              | Oct.                                   | Nov.   | Dec.          | Jan.   | Feb.   | Mar.   | Apr.          | May    | Jun.          |
| 1995/1996                       |                              |  |        |               |        |        |        |               |        |               |
| < 3                             | 4.0%                         | 3.7%                                   | 3.3%   | <b>3.0%</b>   | 2.7%   | 2.3%   | 2.0%   | 1.7%          | 1.3%   | 1.0%          |
| 3                               | 28.0%                        | 26.0%                                  | 24.0%  | <b>22.0%</b>  | 20.0%  | 18.0%  | 16.0%  | 14.0%         | 12.0%  | 10.0%         |
| 4                               | 61.0%                        | 58.3%                                  | 55.5%  | <b>52.8%</b>  | 50.0%  | 47.3%  | 44.5%  | 41.8%         | 39.0%  | 36.3%         |
| >= 5                            | 7.0%                         | 12.1%                                  | 17.2%  | <b>22.3%</b>  | 27.3%  | 32.4%  | 37.5%  | 42.6%         | 47.7%  | 52.8%         |
| Total                           | 100.0%                       | 100.0%                                 | 100.0% | <b>100.0%</b> | 100.0% | 100.0% | 100.0% | 100.0%        | 100.0% | 100.0%        |
| 1996/1997                       |                              |  |        |               |        |        |        |               |        |               |
| < 3                             | 4.0%                         | 3.7%                                   | 3.3%   | 3.0%          | 2.7%   | 2.3%   | 2.0%   | 1.7%          | 1.3%   | <b>1.0%</b>   |
| 3                               | 30.0%                        | 27.8%                                  | 25.7%  | 23.5%         | 21.3%  | 19.2%  | 17.0%  | 14.8%         | 12.7%  | <b>10.5%</b>  |
| 4                               | 60.0%                        | 57.5%                                  | 55.0%  | 52.5%         | 50.0%  | 47.5%  | 45.0%  | 42.5%         | 40.0%  | <b>37.5%</b>  |
| >= 5                            | 6.0%                         | 11.0%                                  | 16.0%  | 21.0%         | 26.0%  | 31.0%  | 36.0%  | 41.0%         | 46.0%  | <b>51.0%</b>  |
| Total                           | 100.0%                       | 100.0%                                 | 100.0% | 100.0%        | 100.0% | 100.0% | 100.0% | 100.0%        | 100.0% | <b>100.0%</b> |
| 1998/1999                       |                              |  |        |               |        |        |        |               |        |               |
| < 3                             | 4.0%                         | 3.7%                                   | 3.3%   | 3.0%          | 2.7%   | 2.3%   | 2.0%   | 1.7%          | 1.3%   | <b>1.0%</b>   |
| 3                               | 33.0%                        | 30.6%                                  | 28.2%  | 25.8%         | 23.3%  | 20.9%  | 18.5%  | 16.1%         | 13.7%  | <b>11.3%</b>  |
| 4                               | 58.0%                        | 55.9%                                  | 53.8%  | 51.8%         | 49.7%  | 47.6%  | 45.5%  | 43.4%         | 41.3%  | <b>39.3%</b>  |
| >= 5                            | 5.0%                         | 9.8%                                   | 14.7%  | 19.5%         | 24.3%  | 29.2%  | 34.0%  | 38.8%         | 43.7%  | <b>48.5%</b>  |
| Total                           | 100.0%                       | 100.0%                                 | 100.0% | 100.0%        | 100.0% | 100.0% | 100.0% | 100.0%        | 100.0% | <b>100.0%</b> |
| 2001/2002                       |                              |  |        |               |        |        |        |               |        |               |
| < 3                             | 7.5%                         | 6.9%                                   | 6.2%   | 5.6%          | 5.0%   | 4.4%   | 3.7%   | <b>3.1%</b>   | 2.5%   | 1.9%          |
| 3                               | 35.3%                        | 33.0%                                  | 30.6%  | 28.3%         | 26.0%  | 23.7%  | 21.4%  | <b>19.1%</b>  | 16.7%  | 14.4%         |
| 4                               | 52.2%                        | 50.8%                                  | 49.3%  | 47.9%         | 46.5%  | 45.1%  | 43.7%  | <b>42.3%</b>  | 40.9%  | 39.5%         |
| >= 5                            | 5.1%                         | 9.4%                                   | 13.8%  | 18.1%         | 22.5%  | 26.8%  | 31.2%  | <b>35.5%</b>  | 39.9%  | 44.2%         |
| Total                           | 100.0%                       | 100.0%                                 | 100.0% | 100.0%        | 100.0% | 100.0% | 100.0% | <b>100.0%</b> | 100.0% | 100.0%        |

Source: Authors' calculation based on U.S. Department of Health and Human Services, Head Start Bureau, "Head Start Program Information Report (PIR) for the 1995–1996 Program Year" (Washington, DC: U.S. Department of Health and Human Services, undated); U.S. Department of Health and Human Services, Head Start Bureau, "Head Start Program Information Report (PIR) for the 1996–1997 Program Year" (Washington, DC: U.S. Department of Health and Human Services, undated); U.S. Department of Health and Human Services, Head Start Bureau, "Head Start Program Information Report (PIR) for the 1998–1999 Program Year" (Washington, DC: U.S. Department of Health and Human Services, undated); and U.S. Department of Health and Human Services, Head Start Bureau, "Head Start Program Information Report (PIR) for the 2001–2002 Program Year" (Washington, DC: U.S. Department of Health and Human Services, undated).

In the months coinciding with the SIPP reference months, the projected age distributions of Head Start children based on the PIR (highlighted in bold in table 4) are much closer to the SIPP data than those in the PIR. Table 5 compares the projected age distribution of Head Start children in the SIPP reference months with the 1995, 1997, 1999, and 2002 SIPP data,

respectively. It shows that for children age three and older, the projected age distribution for December 1995 (the reference month of the 1995 SIPP) is very close to the 1995 SIPP estimate; and the projected age distributions for June 1997 and 1999 (the reference month of the 1997 and 1999 SIPP) and for April 2002 (the reference month of the 2002 SIPP) are also much closer to the corresponding SIPP estimates than those in the PIR.

**Table 5.**  
**Percent Distribution of Children in Head Start by Age: PIR, Projected PIR for SIPP Reference Month, vs. SIPP (1995, 1997, 1999, and 2002)**

|            | <b>PIR Age Distribution<br/>(age as of September)</b> | <b>Projected for SIPP<br/>Reference Month<br/>(based on PIR)</b> | <b>SIPP's Reported<br/>Distribution</b> |
|------------|---|--|---|
| 1995       |   | (December, 1995)   |   |
| Under 3    | 4%  | 3%   | 8%                                      |
| 3 and 4    | 90%   | 75%  | 74%                                     |
| 5 and over | 6%  | 22%  | 18%                                     |
| Total      | 100%  | 100%   | 100%                                    |
| 1997       |   | (June 1997)  |   |
| Under 3    | 4%  | 1%   | 10%                                     |
| 3          | 30%   | 11%  | 18%                                     |
| 4          | 60%   | 37%  | 33%                                     |
| 5          | 6%  | 51%  | 39%                                     |
| Total      | 100%  | 100%   | 100%                                    |
| 1999       |   | (June 1999)  |   |
| Under 3    | 4%  | 1%   | 5%                                      |
| 3 and 4    | 91%   | 51%  | 46%                                     |
| 5 and over | 5%  | 49%  | 49%                                     |
| Total      | 100%  | 100%   | 100%                                    |
| 2002       |   | (April 2002)   |   |
| Under 3    | 7%  | 3%   | 8%                                      |
| 3 and 4    | 87%   | 61%  | 66%                                     |
| 5 and over | 5%  | 36%  | 27%                                     |
| Total      | 100%  | 100%   | 100%                                    |

Sources: Table 3 and table 4.

This does not explain, however, why the age distribution of Head Start children in the 1997 SIPP is so different from that in the 1999 SIPP, whereas the 1997 PIR and the 1999 PIR distributions are almost the same. Because the 1997 and 1999 SIPPs were fielded during the same months, one would expect similar age shifting patterns. This also does not explain why the percentage of Head Start children under age three was so much higher in the SIPP than in the PIR. For example, in the 1997 SIPP, 10 percent of Head Start children were under age three, compared to 4 percent in the PIR. Given the timing of the question about age, the opposite result would be expected (because many Head Start children under age three in the SIPP reference month were under age two during the school enrollment period, and they were less likely than the older children to participate in Head Start).

Another possible explanation is erroneous proxy response. As discussed below, proxies consist of 30 to 40 percent of the “designated parents” in the SIPP data.<sup>66</sup> Some of the proxies who answered questions on behalf of parents in the SIPP child care module may not have known the child’s exact age.

**Race and ethnicity.** *Compared to benchmark data, the SIPP overstated the proportion of white children by 22 percent for 1995; by 32 percent for 1997, by 74 percent for 1999, and by 72 percent for 2002. Conversely, the SIPP understated the proportion of Hispanic children: by 36 percent for 1995, by 41 percent for 1997, by 54 percent in 1999, and by 29 percent in 2002.*

The SIPP reports racial distributions of Head Start children, with the proportion of white children substantially overstated and with discrepancies in the counts of white children, black children, and Asian/Pacific Island children growing from 1995 through 2002. (The SIPP’s proportion of Hispanic children is the only area that showed significant improvement in 2002, although there is still a substantial undercount.)

- In 1995, the percentage of white children in the SIPP was 22 percent higher than in the PIR (39 percent compared to 32 percent), the percentage of black children was 14 percent higher (41 percent compared to 36 percent), the percentage of Hispanic children was 36 percent lower (16 percent compared to 25 percent), and the percentage of American Indian and Asian children was 43 percent lower (4 percent compared to 7 percent). In 1995, the SIPP did not separately report the number and percent of American Indian children and Asian children in Head Start. (See table 6.)
- In 1997, the percentage of white children in the SIPP was 32 percent higher than in the PIR (41 percent compared to 31 percent), the percentage of black children was 3 percent lower (35 percent compared to 36 percent), the percentage of Hispanic children was 41 percent lower (16 percent compared to 27 percent), and the percentage of American Indian and Asian children was 50 percent higher (9 percent compared to 6 percent). In 1997, the SIPP did not separately report the number and percent of American Indian children and Asian children in Head Start. (See table 6.)
- In 1999, the percentage of white children in the SIPP was 74 percent higher than in the PIR (54 percent compared to 31 percent), the percentage of black children was 11 percent lower (31 percent compared to 35 percent), the percentage of Hispanic children 54 percent lower (13 percent compared to 28 percent), and the percentage of Asian and Pacific Island children was 33 percent lower (2 percent compared to 3 percent). In 1999, the SIPP found no American Indian children in Head Start, while the PIR reported 3 percent. (See table 6.)

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<sup>66</sup>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.

- In 2002, the percentage of white children in the SIPP was 72 percent higher than in the PIR (50 percent compared to 29 percent), the percentage of black children was 24 percent lower (26 percent compared to 34 percent), the percentage of Hispanic children 29 percent lower (22 percent compared to 31 percent), and the percentage of American Indian children was 233 percent higher (10 percent compared to 3 percent).<sup>67</sup> In 2002, the SIPP found no Asian or Pacific Island children in Head Start, while the PIR reported 3 percent. (See table 6.)

*Explanation.* The most likely cause of the SIPP's undercount of African Americans and Hispanics is its biased sample, discussed below. High and biased rates of undercoverage and nonresponse and attrition cause it to miss a disproportionate number of low-income and minority women of child-rearing age (eighteen to thirty-nine years old).

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<sup>67</sup>Although the 2002 SIPP reports separately the number of white children of Hispanic and non-Hispanic origin, no such distinction is made in the counts of other racial and ethnic groups. The SIPP includes children of Hispanic origin in its counts of blacks, Asians and Pacific Islanders, and American Indians. These children are also included in the its count of Hispanic children. As a result, non-white Hispanic children are double-counted. Although we cannot estimate the effect of this double-counting on each individual group, we know that it inflates the SIPP's total count of minority children in Head Start by 6.5 percent (213,000 versus 200,000 children). This does not alter our fundamental conclusion, however, because without this inflation, the SIPP's undercount of minority children in Head Start would be even greater.

**Table 6.**  
**Children in Head Start by Race/Ethnicity: PIR vs. SIPP (1995, 1997, 1999, and 2002)**

| Year and Race/Ethnicity of Children | PIR End-of Month Enrollment |         | SIPP Attendance |         | Difference in Percent Distributions <sup>a</sup> |
|-------------------------------------|-----------------------------|---------|-----------------|---------|--|
|                                     | Number                      | Percent | Number          | Percent |  |
| 1995                                | (November)                  |         |                 |         |  |
| White                               | 212,578                     | 32%     | 274,060         | 39%     | 22%  |
| Black                               | 236,929                     | 36%     | 290,390         | 41%     | 14%  |
| Hispanic                            | 165,850                     | 25%     | 115,730         | 16%     | -36%   |
| Other                               | 42,779                      | 7%      | 29,820          | 4%      | -43%   |
| All                                 | 658,136                     | 100%    | 710,000         | 100%    | -  |
| 1997                                | (March)                     |         |                 |         |  |
| White                               | 210,316                     | 31%     | 112,000         | 41%     | 32%  |
| Black                               | 244,238                     | 36%     | 95,000          | 35%     | -3%  |
| Hispanic                            | 183,178                     | 27%     | 43,000          | 16%     | -41%   |
| Other                               | 40,706                      | 6%      | 24,000          | 9%      | 50%  |
| All                                 | 678,438                     | 100%    | 274,000         | 100%    | -  |
| 1999                                | (March)                     |         |                 |         |  |
| White                               | 218,484                     | 31%     | 89,000          | 54%     | 74%  |
| Black                               | 251,436                     | 35%     | 52,000          | 31%     | -11%   |
| Hispanic                            | 199,143                     | 28%     | 22,000          | 13%     | -54%   |
| American Indian                     | 24,356                      | 3%      | 0               | 0%      | -100%  |
| Asian/Pacific Islander              | 22,207                      | 3%      | 3,000           | 2%      | -33%   |
| All                                 | 715,626                     | 100%    | 166,000         | 100%    | -  |
| 2002                                | (April)                     |         |                 |         |  |
| White                               | 242,475                     | 29%     | 100,000         | 50%     | 72%  |
| Black                               | 278,797                     | 34%     | 51,000          | 26%     | -24%   |
| Hispanic                            | 258,054                     | 31%     | 43,000          | 22%     | -29%   |
| American Indian                     | 24,422                      | 3%      | 19,000          | 10%     | 233%   |
| Asian/Pacific Islander              | 24,422                      | 3%      | 0               | 0%      | -100%  |
| All                                 | 852,401                     | 100%    | 213,000         | 108%    | -  |



*Sources:* For Head Start administrative data, U.S. Department of Health and Human Services, Head Start Bureau, “Head Start Program Information Report (PIR) for the 1995–1996 Program Year” (Washington, DC: U.S. Department of Health and Human Services, undated); U.S. Department of Health and Human Services, Head Start Bureau, “Head Start Program Information Report (PIR) for the 1997 Program Year” (Washington, DC: U.S. Department of Health and Human Services, undated); U.S. Department of Health and Human Services, “Head Start Program Information Report (PIR) for the 1998–1999 Program Year, Summary Report” (Washington, DC: U.S. Department of Health and Human Services, undated); and U.S. Department of Health and Human Services, Head Start Bureau, “Head Start Program Information Report (PIR) for the 2001 Fiscal Year” (Washington, DC: U.S. Department of Health and Human Services, undated).

For the SIPP Head Start data, Kristin Smith, “Who’s Minding the Kids? Child Care Arrangements: Fall 1995,” *Current Population Reports*, P70–70 (Washington, DC: U.S. Census Bureau, October 2000), p. 12, available from: <http://www.census.gov/prod/2000pubs/p70-70.pdf>, accessed January 19, 2004; U.S. Census Bureau, “Who’s Minding the Kids? Child Care Arrangements: Spring 1997,” *Current Population Reports*, P70-86, Detailed Tables (Washington, DC: U.S. Census Bureau, August 1, 2002), PPL table 1 and table 3, available from: <http://www.census.gov/population/www/socdemo/child/ppl-964.html>, accessed January 19, 2004; U.S. Census Bureau, “Who’s Minding the Kids? Child Care Arrangements: Spring 1999,” Detailed Tables (Washington, DC: U.S. Census Bureau, January 24, 2003), PPL tables 1A and table 3A, available from: <http://www.census.gov/population/www/socdemo/child/ppl-168.html>, accessed April 3, 2003; and U.S. Census Bureau, “Who’s Minding the Kids? Child Care Arrangements: Winter 2002,” Detailed Tables (Washington, DC: U.S. Census Bureau, October 2005), PPL tables 1A and table 3A, available from: <http://www.census.gov/population/www/socdemo/child/ppl-177.html>, accessed March 6, 2006.

*Notes:* For 1995, the November PIR “end-of-month enrollment” figure is used, because the 1995 SIPP was fielded in the Fall. For 1997 and 1999, the March PIR “end-of-month enrollment” figures are used, because the 1997 and 1999 SIPPs were fielded in the Spring. For 2002, the April PIR “end-of-month enrollment” figure is used, because the 2002 SIPP was fielded between February and May. The 2002 PIR reports 3 percent of children of “multiple” or “unspecified” races. We redistribute this percentage by race and ethnicity groups proportionally, so that the data are comparable to the SIPP data. Although the 2002 SIPP reports separately the number of white children of Hispanic and non-Hispanic origin, no such distinction is made in the counts of other racial and ethnic groups. The SIPP includes children of Hispanic origin in its counts of blacks, Asians and Pacific Islanders, and American Indians. These children are also included in the its count of Hispanic children. As a result, non-white Hispanic children are double-counted. Although we cannot estimate the effect of this double-counting on each individual group, we know that it inflates the SIPP’s total count of minority children in Head Start by 6.5 percent (213,000 versus 200,000 children). This does not alter our fundamental conclusion, however, because without this inflation, the SIPP’s undercount of minority children in Head Start would be even greater. The PIR percent distribution of Head Start children by race was for all children enrolled in a program year. This would not accurately reflect the “end-of-month enrollment” distribution if the turnover rate for children varied by race/ethnicity. However, we do not expect such differences to be large and assume that the overall distribution can be applied to the “end-of-month enrollment” data.

**Income distribution.** *Compared to benchmark data, the SIPP overstated the proportion of nonpoor children in Head Start by 12 percent for 1995, by 35 percent for 1997, and by 67 percent for 1999. Although we do not have benchmark data for 2002, the SIPP's count of nonpoor children in Head Start that year was about 15 percent lower than the 1999 SIPP's count, but still about 5 percent higher than the 1997 SIPP's count. Thus, unless the income distribution of Head Start changed dramatically between 1999 and 2002, the 2002 SIPP still significantly overstated the proportion of nonpoor children in Head Start.*

*SIPP data.* Formal income eligibility for Head Start is set at the federal poverty level. Hence, although that is not as bright a line as it might seem,<sup>68</sup> it is the most appropriate metric for analyzing the SIPP's income data. According to the SIPP, in 1995 only 52 percent of the children in Head Start were poor,<sup>69</sup> that is, putatively income eligible. In 1997, it had fallen to 42 percent,<sup>70</sup> and in 1999, it was only 28 percent.<sup>71</sup> In 2002, according to the SIPP, the percentage of poor Head Start children rose slightly, to 39 percent.<sup>72</sup> The SIPP reported correspondingly high proportions of nonpoor children from families with incomes between 100 and 200 percent of the poverty line: 34 percent in 1995, 36 percent in 1997, 44 percent in 1999, and 21 percent in 2002. And for children from families with incomes above twice the poverty line (about \$25,000 for a

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<sup>68</sup>Eligibility for the Head Start program is not based solely on income level. According to Federal guidelines, eligible Head Start families included families with incomes below 100 percent of the federal poverty guidelines, as well as "families that are eligible for public assistance or would potentially be eligible in the absence of child care services." As a result, some families receiving public assistance or child care services may be deemed eligible, even if their incomes exceed the poverty guidelines. In addition, up to 10 percent of children may be from families with incomes that exceed the poverty guidelines if they are disabled. Furthermore, income-eligibility is based on income at the time the children enrolled in the program (or before).

For a more detailed discussion of how Head Start defines the poverty level for eligibility purposes, see Douglas J. Besharov and Jeffrey S. Morrow, "Is Head Start Fully Funded? Income-Eligible Enrollment, Coverage Rates, and Program Implications," to be published.

<sup>69</sup>Authors' calculation from U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Fall 1995," *Current Population Reports*, P70-70, Detailed Tables (PPL 138) (Washington, DC: U.S. Census Bureau, October 31, 2000), PPL table 1A and table 6A, available from: <http://www.census.gov/population/www/socdemo/child/ppl-138.html>, accessed June 27, 2005.

<sup>70</sup>Authors' calculation based on U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1997," *Current Population Reports*, P70-86, Detailed Tables (PPL 964) (Washington, DC: U.S. Census Bureau, October 31, 2000), PPL table 1 and table 3, available from: <http://www.census.gov/population/www/socdemo/child/ppl-964.html>, accessed December 29, 2003.

<sup>71</sup>Authors' calculation based on U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1999," Detailed Tables (Washington, DC: U.S. Census Bureau, January 24, 2003), PPL table 1A and table 3A, available from: <http://www.census.gov/population/www/socdemo/child/ppl-168.html>, accessed April 3, 2003.

<sup>72</sup>Author's calculation based on U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Winter 2002," Detailed Tables (Washington, DC: U.S. Census Bureau, October 2005), PPL table 1B, available from: <http://www.census.gov/population/socdemo/child/ppl-177/tab01B.xls>, accessed January 9, 2006.

family of three),<sup>73</sup> the SIPP reported 15 percent in 1995, 22 percent in 1997, 28 percent in 1999, and 41 percent in 2002.

*Benchmark data.* To assess the accuracy of the SIPP's data about the income distribution of Head Start children, we do not use the PIR as our benchmark to judge the SIPP's income profile. Although the PIR is considered the primary and most reliable source of administrative data on Head Start enrollment and is the source of our enrollment estimates, the PIR's definition of family income and the time at which it measures income are incompatible with the SIPP.<sup>74</sup> Moreover, a study by David Connell and his colleagues found that the PIR overcounted the proportion of poor Head Start children, partly because Head Start income rules were not always strictly adhered to by Head Start grantees. The study notes that:

While local and national program procedures provided guidelines for how staff recruited and enrolled families, staff sometimes took it upon themselves to assist certain families in the enrollment process . . . In some cases, aid took the form of "bending the rules" such as documenting that a family who really needed Head Start services qualified under the income guidelines, when in fact they may have been ineligible.<sup>75</sup>

Instead, for benchmark data, we use an adjusted income profile created for our Early Education and Child Care (ee/cc) Model.<sup>76</sup> The model bases its income profile of Head Start children on the Family and Child Experiences Survey (FACES), a longitudinal survey from the Department of Health and Human Services of about 3,000 Head Start children, which collects family characteristics throughout the year. Unlike the PIR, the FACES uses a definition of income compatible with the SIPP. Both the FACES and the SIPP measure income according to the official Census Bureau definition, counting the income of all related members of a household.

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<sup>73</sup>U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation, "Prior HHS Poverty Guidelines and Federal Register References" (Washington: U.S. Department of Health and Human Services, 2005), available from: <http://aspe.hhs.gov/poverty/figures-fed-reg.shtml>, accessed August 25, 2005. Figure presented in 1995 dollars.

<sup>74</sup>For a more detailed discussion of how the PIR measures and reports the income of Head Start children, see Douglas J. Besharov and Jeffrey S. Morrow, "Is Head Start Fully Funded? Income-eligible enrollment, coverage rates, and program implications," to be published.

<sup>75</sup>David C. Connell, Linda Hailey, Mary Ann D'Elio, Robert W. O'Brien, Candice Magee Grayton, and Michael J. Keane, *Reaching Out to Families: Head Start Recruitment and Enrollment Practices* (Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families, January 2001), available from: [http://www.acf.hhs.gov/programs/core/ongoing\\_research/faces/reaching\\_out\\_families/reaching\\_chp4.html](http://www.acf.hhs.gov/programs/core/ongoing_research/faces/reaching_out_families/reaching_chp4.html), accessed June 30, 2004.

<sup>76</sup>University of Maryland, Welfare Reform Academy, "Early Education and Child Care (ee/cc) Model," 2006.

The FACES finds significantly fewer nonpoor children in Head Start than does the SIPP. According to the FACES, 35 percent of Head Start children were nonpoor in fall of the 1997/1998 academic year. The FACES does not have income data for the academic years in which the SIPP measures income: 1995 (in the 1995/1996 academic year), 1997 (in the 1996/1997 academic year), and 1999 (in the 1998/1999 academic year).<sup>77</sup>

*Comparability.* The FACES, however, is not completely compatible with the SIPP, as the FACES is fielded six months earlier and in a different academic year—in the fall of 1997 compared to the fall of 1995 and the spring of 1997 and 1999. The timing difference between the fall, when the FACES collected data, and the spring, when the SIPP collected data, is significant because in those six months the incomes of Head Start families rise. We estimate that, in that period, about 8 percent of Head Start children will have moved out of poverty.<sup>78</sup>

After applying this timing adjustment to the FACES income profile, the ee/cc Model estimates about 43 percent of Head Start children to be nonpoor.

The model also allows us to recreate the relationship between the PIR's reported percentage of nonpoor children and that reported by the FACES. Adjusting the PIR's reported nonpoor enrollment for timing and income definition yields an income profile similar to that found by the FACES. The stability of the PIR's reported nonpoor enrollment—about 5 percent in 1995, about 6 percent in 1997, and about 7 percent in 1999—leads us to believe that a FACES income profile would be correspondingly stable across these years. Hence, we believe the patterns we describe are as applicable in other years as in the year reported by the FACES.

*Assessment.* We conclude that the model's adjusted figure, based on the FACES and corrected for compatibility with the SIPP, is a more accurate estimate of the income profile of Head Start enrollees than that in the SIPP.

First, the ee/cc Model's data appear more stable over time than those from the SIPP. Although the fact that we base our income profile on a single year of the FACES ensures that our

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<sup>77</sup>Nicholas Zill, Vice President of Child and Family Studies, Westat, e-mail message to Jeffrey Morrow, September 28, 2005.

<sup>78</sup>Any measurement of the poverty status of families months after enrollment will find a smaller percentage of the children in the program to be poor. As a binary measurement of poor versus nonpoor status, the distribution is truncated because rises in income are almost all that are recorded. After enrollment, some family incomes rise while others fall, but the former far outnumber the latter. This is because there are relatively few nonpoor children at enrollment, so even if they were to become poor, there are not enough of them to make a very big difference. At the same time, many more enrolled children, originally measured as having incomes under poverty, move out of poverty during the year. Because they remain in Head Start, their higher incomes raise Head Start's income profile. (Those whose incomes do not change or decrease remain in poverty.)

For a more detailed discussion of how the incomes of Head Start families increase throughout the year and how we estimate the size of this effect, see Douglas J. Besharov and Jeffrey S. Morrow, "Is Head Start Fully Funded? Income-Eligible Enrollment, Coverage Rates, and Program Implications," to be published.

percentage of nonpoor enrollment stays the same, the volatility of the income profile reported by the SIPP makes the survey's count appear suspect. The SIPP shows drastic increases in the income of Head Start enrollees between surveys. The percent of nonpoor children in Head Start increased from 48 percent in 1995 to 72 percent in 1999, a 50 percent increase over four years. This large shift in the income profile occurs over the years in which the SIPP finds drastically fewer children enrolled in Head Start. That this income profile sits atop such an unstable and potentially inaccurate enrollment count undermines its reliability.

Second, the FACES, on which we base the model's adjusted income profile, surveys a sample group of children whose age and race closely match the administrative data for Head Start children. As discussed above, the SIPP's age and race breakdowns of Head Start children increasingly diverge over time from the administrative data, which remain relatively stable. This leads us to believe that the FACES is likely to be sampling a more demographically representative group of Head Start children than is the SIPP.

*Miscount.* Compared to the benchmark data, the SIPP substantially overstates the income status of Head Start children. The 1995 SIPP showed 48 percent nonpoor children in Head Start, compared with to the benchmark's 43 percent, an overcount of only about 12 percent. The 1997 SIPP showed an increased overcount, reporting 58 percent nonpoor children in Head Start, compared with our finding of 43 percent, an undercount of about 35 percent. The 1999 SIPP showed the largest overcount, reporting 72 percent nonpoor children in Head Start, compared with our finding of 43 percent, an overcount of 67 percent.

As for the SIPP's estimates of the percent of Head Start children with family incomes between 100 and 200 percent of the poverty line, we do not have a direct way to estimate the income distribution of nonpoor children in our adjusted income profile for comparison against the SIPP, but we can arrive at an estimate indirectly.

We estimate only 43 percent of Head Start children to be nonpoor, a pattern we assume applies to the three years in which the SIPP conducts its survey. This 43 percent is lower than the percentage of children the 1999 SIPP found between the poverty line and 200 percent of the poverty line. Were we to distribute the nonpoor children we estimate using the 1999 SIPP's percentages, there would be no remaining children to distribute above 200 percent of poverty. However, we believe the inaccuracies in the SIPP's reported income profile result from an incomplete and biased sample, and not from misreported income. If that is the case, the SIPP's income data on each respondent would be largely accurate, both for Head Start children and for the survey in general. We assume the absolute number of children reported in each income category actually represents a minimum number of such children enrolled in Head Start. With this assumption, we apply the SIPP's absolute number of these children to the benchmark's total Head Start enrollment (for which we use the PIR's March end-of-month enrollment for the corresponding year), estimating the minimum percentage of Head Start children with incomes over 200 percent of the poverty line to have been 16 percent in 1995, 8 percent in 1997, and 6 percent in 1999.

*Explanations.* Although it can be difficult to gather accurate income data from a survey like the SIPP,<sup>79</sup> the most likely explanation for the SIPP's overestimate of the percent of nonpoor children in Head Start is that the SIPP misses a disproportionate number of poor children.

As we describe above, between 1995 and 1999, the SIPP missed increasingly large numbers of Head Start children, as many as 77 percent in 1999 and 2002. Over the same time period, the demographic profile of Head Start children reported by the SIPP indicates that the Head Start children missed were disproportionately racial minorities, thus overestimating the proportion of white children in Head Start by 74 percent in 1999. In addition, the SIPP generally missed a disproportionately high number of people in the demographic categories most likely to comprise the lowest-income recipients of Head Start services, especially black women between the ages of eighteen and thirty-nine. The same undercoverage, high nonresponse and attrition rates that caused the SIPP to miss these families and to underestimate Head Start enrollment also caused the SIPP to miss the lowest-income families in Head Start.

Because the SIPP's definition of family income is broadly consistent with that used by the FACES, the Census Bureau, and numerous other measures of income, we believe the incomes reported by the SIPP to be generally accurate. Although the SIPP's percentage of Head Start children with family incomes more than twice the poverty line is inaccurately high, we find the absolute number of such children in Head Start to be a credible minimum because of the potentially higher incomes of households containing subfamilies (such as where the mother lives with her parents). These families would appear income-eligible to Head Start agencies, which disregard household income outside that of the child's immediate family. Hence, in some cases, the total household income of a Head Start-enrolled child could very possibly exceed twice the poverty line.

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<sup>79</sup> Surveys, in particular, may incorrectly report income because respondents failed to understand the survey question, proxy respondents did not know the correct information, and respondents were not willing to give accurate information. We discuss these measurement issues in greater detail below.

## 2

# Center-Based Care Miscounts

This chapter examines the SIPP's data on center-based care, a category consisting of nursery, preschool, day care centers, and Head Start. Compared to benchmark data, the SIPP has significant and growing miscounts of children in nursery and preschool as well as in the umbrella category of "center-based care." Because our benchmark data come from several different surveys with slight variations of definitions, nomenclature, and timing, they do not provide as precise a fit as do the administrative data in the case of Head Start. We describe in this chapter the process by which we adjust the data for comparability with the SIPP. Once we have done so, we are comfortable using these data as our benchmark.

**Nursery and preschool.** *Compared to benchmark data, the 1995 SIPP missed only about 11 percent of the children who were in nursery or preschool (0.43 million children). But the 1997 SIPP missed about 56 percent (about 1.99 million children) and the 1999 SIPP missed about 63 percent (2.45 million children), and the 2002 SIPP missed about 58 percent (2.03 million children).*

*SIPP data.* According to the 1995 SIPP, 3.33 million children were in nursery and preschool (regardless of age).<sup>80</sup> But for 1997, the SIPP reported only about half that amount, or

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<sup>80</sup>Authors' calculation based on U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Fall 1995," *Current Population Reports*, P70-70, Detailed Tables (PPL 138) (Washington, DC: U.S. Census Bureau, October 31, 2000), PPL table 1A, "Child Care Arrangements for Preschoolers by Family Characteristics: Fall 1995," and PPL table 3A, "Child Care Arrangements for Gradeschoolers by Family Characteristics: Fall 1995," available from: <http://www.census.gov/population/socdemo/child/ppl-138/tab01a.txt>, accessed December 29, 2003.

about 1.57 million children,<sup>81</sup> for 1999 it reported about 1.44 million children,<sup>82</sup> and for 2002, it similarly reported only about 1.47 million children.

*Benchmark data.* To assess the accuracy of the SIPP's data on nursery and preschool attendance, we compare it to the CPS's October School Enrollment Supplement from the corresponding school year. (See box 2.) Because the 1995 SIPP was fielded in the fall, the October 1995 CPS provides data from the same school year. Both the 1997 and 1999 SIPPs, however, were fielded between March and June, representing the 1996/1997 and 1998/1999 school years. As a result, the corresponding October CPS data to the 1997 and 1999 SIPPs are from October 1996 and October 1998. For 1995/1996, the CPS found about 4.4 million children in nursery and preschool. It found 4.2 million for 1996/1997, 4.6 million for 1998/1999, and 4.3 million for 2001/2002.

*Comparability.* These estimates, however, are not exactly comparable. The CPS estimate includes the number of children in Head Start (without separating them out),<sup>83</sup> while the SIPP estimate does not. Therefore, we adjust the CPS estimate of the number of children in nursery/preschool by subtracting Head Start's relevant end-of-month enrollment figure. Even after this adjustment, the CPS figures are multiples higher than the SIPP's except for 1995 (which, of course, is the usual pattern). For 1995/1996, the CPS figure minus Head Start is about 3.8 million children, 3.6 million for 1996/1997, 3.9 million for 1998/1999, and about 3.5 million for 2001/2002.

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<sup>81</sup>Authors' calculation based on U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1997," *Current Population Reports*, P70-86, Detailed Tables, (Washington, DC: U.S. Census Bureau, August 1, 2002), PPL table 1A, "Child Care Arrangements for Preschoolers by Family Characteristics and Employment Status of Mother: Spring 1997," and table 3A, "Child Care Arrangements for Gradeschoolers by Family Characteristics and Employment Status of Mother: Spring 1997," available from: <http://www.census.gov/population/www/socdemo/child/ppl-964.html>, accessed April 3, 2003.

<sup>82</sup>Authors' calculation based on U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1999," Detailed Tables (Washington, DC: U.S. Census Bureau, January 24, 2003), PPL table 1A, "Child Care Arrangements for Preschoolers by Family Characteristics and Employment Status of Mother: Spring 1999," and table 3A, "Child Care Arrangements for Gradeschoolers by Family Characteristics and Employment Status of Mother: Spring 1999," available from: <http://www.census.gov/population/www/socdemo/child/ppl-168.html>, accessed April 3, 2003; and U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Winter 2002," Detailed Tables (Washington, DC: U.S. Census Bureau, October 2005), PPL table 1B, available from: <http://www.census.gov/population/socdemo/child/ppl-177/tab01B.xls>, accessed January 9, 2006.

<sup>83</sup>A nursery school is defined as "a group or class that is organized to provide educational experiences for children during the year or years preceding kindergarten. It includes instruction as an important and integral phase of its program of child care. Private homes in which essentially custodial care is provided are not considered nursery schools. Children attending nursery school are classified as attending during either part of the day or the full day. Part-day attendance refers to those who attend either in the morning or in the afternoon, but not both. Full-day attendance refers to those who attend in both the morning and the afternoon. Children enrolled in Head Start programs or similar programs sponsored by local agencies to provide preschool education to young children are counted under nursery school." See U.S. Census Bureau, *Current Population Survey Definitions and Explanations* (Washington, DC: U.S. Census Bureau, undated), available from: <http://www.census.gov/population/www/cps/cpsdef.html>, accessed July 8, 2003.



The CPS and the SIPP are not strictly comparable because the former counts enrollment and the latter counts attendance. The CPS counts the number of children “enrolled” in nursery or preschool, while the SIPP counts the number of children “attending” nursery or preschool at least once every week in the past month. The number of children enrolled should be larger than the number attending, because some enrolled children would not have attended at least once every week in the past month. But the difference should be small, because very few enrolled children would miss school for a large part of a month, particularly because the SIPP question about school attendance is: “Did (child’s name) usually attend kindergarten or grade school or, grades 1-12 last month?”<sup>84</sup>

*Assessment.* We conclude that the CPS nursery/preschool enrollment survey data are more accurate than the SIPP estimate. The CPS has been conducted every October since 1947, using a relatively consistent questionnaire, and asking about school enrollment for all household members three years old and over. The cross-year trends of the CPS appear to be stable, with no large fluctuations both for all children and for children of each single-age group.

Moreover, the estimates from the CPS school enrollment supplement are consistent with the those in the Common Core of Data (CCD) record of the Department of Education from 1990 to 2000. The CCD is a large database on public elementary and secondary education maintained by the National Center for Education Statistics (NCES) of the Department of Education. The enrollment information of the CCD is obtained each year from all public elementary and secondary schools in the U.S. through the state education agencies.<sup>85</sup> The CCD is not comparable to the SIPP, because the CCD does not provide information about private schools, whereas the SIPP does not have separate data on public and private schools. However, the CCD can be used to evaluate the quality of the CPS estimates on school enrollment because the CPS has separate estimates on public school enrollment. Table 7 shows that the CPS estimates were very close to the CCD record, with a difference below 1 percent in eight of the eleven years and between 1 and 2 percent in the remaining three years.

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<sup>84</sup>U.S. Census Bureau, “Child Care Topical Module,” available from: [http://www.sipp.census.gov/sipp/top\\_mod/1996/quests/wave4/childcar.htm](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](http://www.sipp.census.gov/sipp/top_mod/1996/quests/wave10/childcar.htm), accessed June 8, 2005.

<sup>85</sup>U.S. Department of Education, National Center for Education Statistics, “What Is the CCD?” (Washington, DC: U.S. Department of Education, 2003), available from: <http://www.nces.ed.gov/ccd/aboutCCD.asp>, accessed December 1, 2003.

**Table 7.**  
**Public Elementary and Secondary School Enrollment: CCD vs. CPS (1990–2000)**

| Year | CCD        | CPS        | CPS as Percent of CC |
|------|------------|------------|----------------------|
| 2000 | 47,222,778 | 46,760,000 | 99.0%                |
| 1999 | 46,857,321 | 46,849,000 | 100.0%               |
| 1998 | 46,534,687 | 46,298,000 | 99.5%                |
| 1997 | 46,126,897 | 46,925,000 | 101.7%               |
| 1996 | 45,611,046 | 45,335,000 | 99.4%                |
| 1995 | 44,840,481 | 45,026,000 | 100.4%               |
| 1994 | 44,111,482 | 44,721,000 | 101.4%               |
| 1993 | 43,464,916 | 43,588,000 | 100.3%               |
| 1992 | 42,823,312 | 42,719,000 | 99.8%                |
| 1991 | 42,046,878 | 42,101,000 | 100.1%               |
| 1990 | 41,216,683 | 41,651,000 | 101.1%               |

*Sources:* For CPS, U.S. Census Bureau, “School Enrollment—Social and Economic Characteristics of Students: October 2000,” Detailed Tables (Washington, DC: U.S. Census Bureau, 2001), table 5, available from: <http://www.census.gov/population/socdemo/school/ppl-148/tab05.txt>, accessed December 1, 2003; U.S. Census Bureau, “School Enrollment—Social and Economic Characteristics of Students: October 1999,” *Current Population Reports*, P20-533, Detailed Tables (Washington, DC: U.S. Census Bureau, 2001), table 5, available from: <http://www.census.gov/population/socdemo/school/p20-533/tab05.pdf>, accessed December 1, 2003; U.S. Census Bureau, “School Enrollment—Social and Economic Characteristics of Students: October 1998,” *Current Population Reports*, P20-521, Detailed Tables (Washington, DC: U.S. Census Bureau, 1999), table 5, available from: <http://www.census.gov/population/socdemo/school/p20-521/tab05.pdf>, accessed December 1, 2003; U.S. Census Bureau, “School Enrollment—Social and Economic Characteristics of Students: October 1997,” *Current Population Reports*, P20-516, Detailed Tables (Washington, DC: U.S. Census Bureau, 1999), table 5, available from: <http://www.census.gov/prod/99pubs/p20-516u.pdf>, accessed December 1, 2003; U.S. Census Bureau, “School Enrollment—Social and Economic Characteristics of Students: October 1996,” *Current Population Reports*, P20-500, Detailed Tables (Washington, DC: U.S. Census Bureau, 1998), table 5, available from: <http://www.census.gov/prod/3/98pubs/p20-500u.pdf>, accessed December 1, 2003; U.S. Census Bureau, “School Enrollment—Social and Economic Characteristics of Students: October 1995,” *Current Population Reports*, P20-492, Detailed Tables (Washington, DC: U.S. Census Bureau, 1997), table 5, available from: <http://www.census.gov/prod/99pubs/p20-516u.pdf>, accessed December 1, 2003; U.S. Census Bureau, “School Enrollment—Social and Economic Characteristics of Students: October 1994,” *Current Population Reports*, P20-487 (Washington, DC: U.S. Census Bureau, 1996), table 5, p. 20, available from: <http://www.census.gov/prod/2/pop/p20/p20-487.pdf>, accessed December 1, 2003; U.S. Census Bureau, “School Enrollment—Social and Economic Characteristics of Students: October 1993,” *Current Population Reports*, P20-479, (Washington, DC: U.S. Census Bureau, 1994), table 5, available from: <http://www.census.gov/prod/2/pop/p20/p20-487.pdf>, accessed December 1, 2003; U.S. Census Bureau, “School Enrollment—Social and Economic Characteristics of Students: October 1992,” *Current Population Reports*, P20-474 (Washington, DC: U.S. Census Bureau, 1993), table 5, available from: <http://www.census.gov/population/socdemo/school/p20-474/tab05.pdf>, accessed December 1, 2003; U.S. Census Bureau, “School Enrollment—Social and Economic Characteristics of Students: October 1991,” *Current Population Reports*, P20-469 (Washington, DC: U.S. Census Bureau, 1993), table 5, available from: <http://www.census.gov/population/socdemo/school/p20-469/tab05.pdf>, accessed December 1, 2003; and U.S. Census Bureau, “School Enrollment—Social and Economic Characteristics of Students: October 1990,” *Current Population Reports*, P20-460 (Washington, DC: U.S. Census Bureau, 1992), table 5, available from: <http://www.census.gov/population/socdemo/school/p20-460/tab05.pdf>, accessed December 1, 2003.

For CCD, U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics 2002*, NCES 2003-060 (Washington, DC: U.S. Department of Education, 2002), table 37. Enrollment in public elementary and secondary schools, by level and state: fall 1987 to fall 2001,” pp. 50-51, available from: <http://nces.ed.gov/pubsub/2003/2003060b.pdf>, accessed December 1, 2003.

*Miscount.* For 1995/1996, our adjusted CPS estimate of the children in nursery/preschool is about 3.8 million,<sup>86</sup> compared to the 1995 SIPP's count of only 3.3 million,<sup>87</sup> which is 11 percent lower. For 1996/1997, that undercount increased dramatically, with our adjusted CPS nursery/preschool estimate at about 3.6 million<sup>88</sup> and the 1997 SIPP at only 1.6 million children,<sup>89</sup> which is 56 percent lower. For 1998/1999, the undercount further increased, with our adjusted CPS nursery/preschool estimate at 3.89 million<sup>90</sup> and the 1999 SIPP at only 1.44 million

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<sup>86</sup>Authors' calculation based on U.S. Census Bureau, "School Enrollment—Social and Economic Characteristics of Students: October 1995," *Current Population Reports*, P20-492 (Washington, DC: U.S. Census Bureau, April 1997), table 3, "Single Grade of Enrollment and High School Graduation Status of People 3 Years Old and Over, by Age (Single Years for 3 to 24 Years), Sex, Race, and Hispanic Origin: October 1995," available from: <http://www.census.gov/prod/2/pop/p20/p20-492u.pdf>, accessed December 30, 2003; and U.S. Department of Health and Human Services, Head Start Bureau, "Head Start Program Information Report (PIR) for the 1995-1996 Program Year" (Washington, DC: U.S. Department of Health and Human Services, undated). We subtract HS's March end-of-month enrollment figure from the CPS number to make it comparable to the SIPP estimate of children in nursery/preschool.

<sup>87</sup>Authors' calculation based on U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Fall 1995," *Current Population Reports*, P70-70, Detailed Tables (PPL 138) (Washington, DC: U.S. Census Bureau, October 31, 2000), PPL table 1A, "Child Care Arrangements for Preschoolers by Family Characteristics: Fall 1995," and PPL table 3A, "Child Care Arrangements for Gradeschoolers by Family Characteristics: Fall 1995," available from: <http://www.census.gov/population/socdemo/child/ppl-138/tab01a.txt>, accessed December 29, 2003.

<sup>88</sup>Authors' calculation based on U.S. Census Bureau, "Detailed Tables," in "School Enrollment—Social and Economic Characteristics of Students: October 1996," *Current Population Reports*, P20-500 (Washington, DC: U.S. Census Bureau, 1998), table 3, p. 8, available from: <http://www.census.gov/prod/3/98pubs/p20-500u.pdf>, accessed December 8, 2005; and U.S. Department of Health and Human Services, Head Start Bureau, "Head Start Program Information Report (PIR) for the 1997 Program Year, Summary Report," (Washington, DC: U.S. Department of Health and Human Services, October 23, 2000). We subtract Head Start's March end-of-month enrollment figure from the CPS number to make it comparable to the SIPP estimate of children in nursery/preschool.

<sup>89</sup>Authors' calculation based on U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1997," *Current Population Reports*, P70-86, Detailed Tables, (Washington, DC: U.S. Census Bureau, August 1, 2002), PPL table 1A, "Child Care Arrangements for Preschoolers by Family Characteristics and Employment Status of Mother: Spring 1997," and table 3A, "Child Care Arrangements for Gradeschoolers by Family Characteristics and Employment Status of Mother: Spring 1997," available from: <http://www.census.gov/population/www/socdemo/child/ppl-964.html>, accessed April 3, 2003.

<sup>90</sup>Authors' calculation from U.S. Census Bureau, "School Enrollment—Social and Economic Characteristics of Students: October 1998," *Current Population Reports*, P20-521 (Washington, DC: U.S. Census Bureau, September 1999), table 2, "Single Grade of Enrollment and High School Graduation Status of People 3 Years Old and Over, by Age (Single Years for 3 to 24 Years), Sex, Race, and Hispanic Origin: October 1998," available from: <http://www.census.gov/population/socdemo/school/p20-521/tab02.pdf>, accessed December 8, 2005; and U.S. Department of Health and Human Services, Head Start Bureau, "Head Start Program Information Report (PIR) for the 1998-1999 Program Year, Summary Report" (Washington, DC: U.S. Department of Health and Human Services, October 23, 2000). We subtract Head Start's March end-of-month enrollment figure from the CPS number to make it comparable to the SIPP estimate of children in nursery/preschool.

children,<sup>91</sup> 63 percent lower. For 2001/2001, the SIPP's count improved slightly, but is still much lower than the CPS count, with our adjusted CPS nursery/preschool estimate at 3.50 million and the 2002 SIPP at only 1.47 million children, 58 percent lower. (See table 9.)

*Explanations.* Initially, we thought that the undercount of children under age five in nursery or preschool could have been caused by parental (or proxy respondent) confusion between nursery and preschool or between kindergarten and school, because the 1997 and the 1999 SIPP estimates of children under age five in kindergarten or school are significantly higher than the corresponding CPS estimates. As discussed below, the 1997 SIPP overcounted 268,000 children under age five in kindergarten or school (573,000 in the 1997 SIPP versus 305,000 in the 1996 CPS);<sup>92</sup> the 1999 SIPP overcounted 505,000 such children in school (809,000 in the SIPP versus 304,000 in the 1998 CPS);<sup>93</sup> and the 2002 SIPP overcounted 485,000 such children in school (801,000 in the 2002 SIPP versus 316,000 in the 2001 CPS).<sup>94</sup>

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<sup>91</sup>Authors' calculation based on U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1999," Detailed Tables (Washington, DC: U.S. Census Bureau, January 24, 2003), PPL table 1A, "Child Care Arrangements for Preschoolers by Family Characteristics and Employment Status of Mother: Spring 1999," and table 3A, "Child Care Arrangements for Gradeschoolers by Family Characteristics and Employment Status of Mother: Spring 1999," available from: <http://www.census.gov/population/www/socdemo/child/ppl-168.html>, accessed April 3, 2003.

<sup>92</sup>For the SIPP, U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1997," *Current Population Reports*, P70-86, Detailed Tables (Washington, DC: U.S. Census Bureau, August 1, 2002), PPL table 1A, "Child Care Arrangements for Preschoolers by Family Characteristics and Employment Status of Mother: Spring 1997," available from: <http://www.census.gov/population/www/socdemo/child/ppl-964.html>, accessed April 3, 2003, for CPS, U.S. Census Bureau, "School Enrollment—Social and Economic Characteristics of Students: October 1996," *Current Population Reports*, P20-500 (Washington, DC: U.S. Census Bureau, June 1998), table 3, "Single Grade of Enrollment and High School Graduation Status of People 3 Years Old and Over, by Age (Single Years for 3 to 24 Years), Sex, Race, and Hispanic Origin: October 1996," available from: <http://www.census.gov/prod/3/98pubs/p20-500u.pdf>, accessed December 8, 2005.

<sup>93</sup>For the CPS, authors' calculation based on U.S. Census Bureau, "School Enrollment—Social and Economic Characteristics of Students: October 1998," *Current Population Reports*, P20-521 (Washington, DC: U.S. Census Bureau, September 1999), table 2, "Single Grade of Enrollment and High School Graduation Status of People 3 Years Old and Over, by Age (Single Years for 3 to 24 Years), Sex, Race, and Hispanic Origin: October 1998," available from: <http://www.census.gov/population/socdemo/school/p20-521/tab02.pdf>, accessed December 8, 2005; for the SIPP, authors' calculation based on U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1999," Detailed Tables (Washington, DC: U.S. Census Bureau, January 24, 2003), PPL table 1A, "Child Care Arrangements for Preschoolers by Family Characteristics and Employment Status of Mother: Spring 1999," available from: <http://www.census.gov/population/www/socdemo/child/ppl-168.html>, accessed April 3, 2003.

<sup>94</sup>For the CPS, authors' calculation based on U.S. Census Bureau, "School Enrollment—Social and Economic Characteristics of Students: October 2001," Detailed Tables (Washington, DC: U.S. Census Bureau, September 1999), table 2, "Single Grade of Enrollment and High School Graduation Status of People 3 Years Old and Over, by Age (Single Years for 3 to 24 Years), Sex, Race, and Hispanic Origin: October 2001," <http://www.census.gov/population/www/socdemo/school/cps2001.html> (accessed March 22, 2006); for the SIPP, U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Winter 2002," Detailed Tables (Washington, DC: U.S. Census Bureau, December 2005), PPL table 1A, "Child Care Arrangements for Preschoolers

After reviewing the SIPP data and the questionnaires for 1995, 1997, 1999, and 2002, however, it does not seem likely that the entire undercount was caused by such confusion. First, the kind of parental confusion that the questionnaires could cause would more likely result in an overcount rather than an undercount of children in nursery or preschool. In the 1997 and 1999 SIPP questionnaires, “kindergarten or school” was not included in the list of child care arrangements. The question about schooling was asked many questions later in the questionnaire. Without the specific choice of “kindergarten and school,” parents whose young children had already entered kindergarten or school may have mistaken it for a nursery or preschool. Such confusion would result in an *overcount* of children in nursery or preschool, not an undercount as was observed. The obverse is also possible, that is, a parent with a child in nursery or preschool might indicate the arrangement as school. But, given the structure of the question, we think it is substantially less likely.

Second, the 1997 and 1999 SIPPs also undercounted the total number of children under age six in kindergarten or school. Although the 1997 and 1999 SIPPs overcounted three- and four-year-olds in kindergarten or school, this overcount was significantly lower than the undercount of such children in nursery or preschool,<sup>95</sup> and is more than offset by the undercount of five-year-olds in kindergarten and school.

Third, the 1995 SIPP counts of children in kindergarten or school and in nursery or preschool were both accurate, although the relevant questions in the 1995 questionnaire are structured similarly to those in 1997, 1999, and 2002.

There are several likely explanations for the undercount of children in nursery and preschool in the SIPP. First, as discussed below, the 1997 and 1999 SIPPs included a transition month (June) in the survey period, meaning that 25 percent of their samples included a transition month. During this month, many children began summer vacation. Because the SIPP question on child care counted only those who were in the care arrangement “at least once every week in the past month,”<sup>96</sup> those children would not be counted as in nursery or preschool if their summer vacation started more than one week before the end of June.

Table 10 shows that the monthly number of children in nursery and preschool was relatively consistent in March, April, and May. The numbers dropped significantly from May to

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by Family Characteristics and Employment Status of Mother: Winter 2002,” <http://www.census.gov/population/socdemo/child/ppl-177/tab01A.xls> (accessed March 22, 2006).

<sup>95</sup>For 1997, the SIPP overcount of children in kindergarten or school was 268,000, but its undercount of children in nursery or preschool was 1,963,000; for 1999, the SIPP overcount of children in kindergarten or school was 505,000, but its undercount of children in nursery or preschool was 2,417,000.

<sup>96</sup>U.S. Census Bureau, “Child Care Topical Module,” available from: [http://www.sipp.census.gov/sipp/top\\_mod/1996/quests/wave4/childcar.htm](http://www.sipp.census.gov/sipp/top_mod/1996/quests/wave4/childcar.htm), accessed December 19, 2000.

June: a 28 percent decline in the number of children in nursery/preschool (from 427,924 children to 306,036 children).<sup>97</sup>

Second, the CPS counts the number of children “enrolled” in nursery or preschool, and the SIPP counts the number of children “attending” nursery or preschool at least once every week in the past month. The number of children attending should be smaller than the number enrolled, because some enrolled children would not have attended nursery or preschool at least once every week in the past month. But the difference should be small for the months during which school was in session.

Third, a small portion of the undercount of children in nursery or preschool for 1997 and 1999 may be the result of erroneous proxy responses. As discussed above, the SIPP has high proxy response rate (40 percent in the 1995 SIPP, 38 percent in the 1997 SIPP, 30 percent in the 1999 SIPP, and 38 percent in 2002).<sup>98</sup> Some of the proxies may not have known that the children were attending nursery or preschool; or they may have confused nursery or preschool with day care centers or kindergartens. The confusion by proxies, however, probably accounts for only a small portion of the undercount, because the SIPP also undercounted children in day care centers and kindergartens, as discussed above and below.

Moreover, “confused” proxy response would not explain why the SIPP’s undercount grew so significantly between 1995 and 1997 and continued to grow through 2002. Rates of proxy response decreased through 1999 and, although the rate rose again in 2002, the 1995 SIPP reported the highest levels of proxy response. Yet, its count of nursery/preschool was significantly closer to the benchmark data. Thus, proxy response is unlikely to be the primary source of the undercount of nursery and preschool children.

Fourth, as with Head Start, the timing of the SIPP may have excluded older children from the its count of those in nursery and preschool. The 1995, 1997, 1999, and 2001 SIPP questionnaires use one list of child care arrangements for younger children (ages zero to five) and another for older children (ages six to fourteen). The list of arrangements for older children does not include nursery/preschool as an option, presumably because six-year-olds would be in school. The 1997, 1999, and 2001 SIPPs, however, measure the child’s age in the late spring or summer. This means that many of the six-year-olds in the SIPP would have been five at the time of school enrollment and may not have been enrolled in school. In 2001/2002, the October CPS

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<sup>97</sup>Authors’ calculation based on U.S. Census Bureau, 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.

<sup>98</sup>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.

found about 575,000 five- and six-year-olds enrolled in nursery in 2001/2002.<sup>99</sup> By the time of the 2002 SIPP, six months later, many of these children will have turned six or older. A respondent for such a child would not have the option of indicating nursery or preschool as a child care arrangement, thus excluding that child from the SIPP's enrollment count.

Consequently, much of the undercount remains unexplained, because the above three explanations account for only some of the more than 2 million nursery and preschool children the SIPP missed in 1997, 1999, and 2002.

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<sup>99</sup>U.S. Census Bureau, "School Enrollment—Social and Economic Characteristics of Students: October 2001," Detailed Tables (Washington, DC: U.S. Census Bureau, September 1999), table 2, "Single Grade of Enrollment and High School Graduation Status of People 3 Years Old and Over, by Age (Single Years for 3 to 24 Years), Sex, Race, and Hispanic Origin: October 2001," <http://www.census.gov/population/www/socdemo/school/cps2001.html> (accessed April 7, 2006).

**Table 8.**  
**Primary Child Care Arrangements for Children under Age 5 with Employed Mothers: Percentage Distribution by Type of Arrangement in SIPP (1985–2002)**

| Type of Primary Arrangement                                    | Percent of Preschool Children <sup>a</sup> |           |           |           |           |                        |                          |                          |                          |
|--|--|-----------|-----------|-----------|-----------|------------------------|--------------------------|--------------------------|--------------------------|
|  | Winter 1985                                | Fall 1988 | Fall 1990 | Fall 1991 | Fall 1993 | Fall 1995 <sup>b</sup> | Spring 1997 <sup>b</sup> | Spring 1999 <sup>b</sup> | Winter 2002 <sup>b</sup> |
| Parent   | 23.8                                       | 22.7      | 22.9      | 28.7      | 22.1      | 22.0                   | 22.3                     | 21.5                     | 20.7                     |
| Relative   | 24.1                                       | 21.1      | 23.1      | 23.5      | 26.0      | 21.4                   | 25.7                     | 28.8                     | 24.8                     |
| Organized facility   | 23.1                                       | 25.8      | 27.5      | 23.1      | 29.9      | 25.1                   | 21.6                     | 22.1                     | 24.3                     |
| Day care center  | 14.0                                       | 16.6      | 20.6      | 15.8      | 18.3      | 17.7                   | 16.6                     | 17.9                     | 18.3                     |
| Nursery/preschool  | 9.1  | 9.2       | 6.9       | 7.3       | 11.6      | 5.9                    | 4.2                      | 3.8                      | 5.2                      |
| Head Start <sup>c</sup>  | -  | -         | -         | -         | -         | 1.5                    | 0.9                      | 0.4                      | 0.8                      |
| Other non-relative   | 28.2                                       | 28.9      | 25.1      | 23.3      | 21.6      | 28.4                   | 22.5                     | 20.3                     | 17.2                     |
| Other (including self-care, other, and no regular arrangement) | 0.8  | 1.6       | 1.3       | 1.6       | 1.1       | 2.9                    | 8.1                      | 7.3                      | 13.0                     |
| Total  | 100.0                                      | 100.0     | 100.0     | 100.0     | 100.0     | 100.0                  | 100.0                    | 100.0                    | 100.0                    |

Sources: For 1985–1999, U.S. Census Bureau, “Who’s Minding the Kids? Child Care Arrangements: Spring 1999,” Detailed Tables (Washington, DC: U.S. Census Bureau, October 2003), Historical Table. “Primary Child Care Arrangements Used by Employed Mothers of Preschoolers: 1985 to 1999,” available from: <http://www.census.gov/population/socdemo/child/pp1-168/tabH-1.pdf>, accessed November 20, 2003; and for 2002, Julia Overturf Johnson, “Who’s Minding the Kids? Child Care Arrangements: Winter 2002,” *Current Population Reports*, P70-101 (Washington, DC: U.S. Census Bureau, October 2005), available from: <http://www.census.gov/prod/2005pubs/p70-101.pdf>, accessed March 7, 2006.

Notes:

<sup>a</sup>Preschool children are defined as children from birth to age four.

<sup>b</sup>Percentage has been proportionately redistributed to sum to 100 percent.

<sup>c</sup>Between 1985 and 1993, Head Start children are counted in either the “day care center” or “nursery/preschool” category.



**Table 9.**  
**Children (of all ages) in Nursery and Preschool: CPS vs. SIPP (1995, 1997, 1999, and 2002)**  
**(numbers in thousands)**

| <b>Year</b> | <b>Adjusted CPS Enrollment</b> | <b>SIPP Attendance</b> | <b>SIPP as Percent of CPS</b> |
|-------------|--------------------------------|------------------------|-------------------------------|
| 1995/1996   |                                |                        |                               |
| Under age 3 | NA                             | 438                    | NA                            |
| 3 and 4     | 3,134                          | 2,160                  | 69%                           |
| 5 and over  | 633                            | 736                    | 116%                          |
| All         | 3,767                          | 3,334                  | 89%                           |
| 1996/1997   |                                |                        |                               |
| Under age 3 | NA                             | 188                    | NA                            |
| 3 and 4     | 3,044                          | 913                    | 30%                           |
| 5 and over  | 516                            | 471                    | 91%                           |
| All         | 3,561                          | 1,571                  | 44%                           |
| 1998/1999   |                                |                        |                               |
| Under age 3 | NA                             | 180                    | NA                            |
| 3 and 4     | 3,211                          | 830                    | 26%                           |
| 5 and over  | 680                            | 434                    | 64%                           |
| All         | 3,891                          | 1,444                  | 37%                           |
| 2001/2002   |                                |                        |                               |
| Under age 3 | NA                             | 191                    | NA                            |
| 3 and 4     | 2,969                          | 931                    | 31%                           |
| 5 and over  | 532                            | 348                    | 65%                           |
| All         | 3,501                          | 1,470                  | 42%                           |

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*Sources:* For adjusted CPS, authors' calculation based on U.S. Census Bureau, "School Enrollment–Social and Economic Characteristics of Students: October 1995," *Current Population Reports*, P20-492, Detailed Tables (Washington, DC: U.S. Census Bureau, 1997), table 3. "Single Grade of Enrollment and High School Graduation Status of People 3 Years Old and Over, by Age (Single Years for 3 to 24 Years), Sex, Race, and Hispanic Origin: October 1995," available from: <http://www.census.gov/prod/2/pop/p20/p20-492u.pdf>, accessed January 2, 2004; U.S. Census Bureau, "School Enrollment–Social and Economic Characteristics of Students: October 1996," *Current Population Reports*, P20-500 (Washington, DC: U.S. Census Bureau, June 1998), table 3, "Single Grade of Enrollment and High School Graduation Status of People 3 Years Old and Over, by Age (Single Years for 3 to 24 Years), Sex, Race, and Hispanic Origin: October 1996," available from: <http://www.census.gov/prod/3/98pubs/p20-500u.pdf>, accessed December 8, 2005; U.S. Census Bureau, "School Enrollment–Social and Economic Characteristics of Students: October 1998," *Current Population Reports*, P20-521 (Washington, DC: U.S. Census Bureau, September 1999), table 2, "Single Grade of Enrollment and High School Graduation Status of People 3 Years Old and Over, by Age (Single Years for 3 to 24 Years), Sex, Race, and Hispanic Origin: October 1998," available from: <http://www.census.gov/population/socdemo/school/p20-521/tab02.pdf>, accessed December 8, 2005; U.S. Census Bureau, "School Enrollment–Social and Economic Characteristics of Students: October 2001," Detailed Tables (Washington, DC: U.S. Census Bureau, August 28, 2003), table 2, "Single Grade of Enrollment and High School Graduation Status of People 3 Years Old and Over, by Age (Single Years for 3 to 24 Years), Sex, Race, and Hispanic Origin: October 2001," available from: <http://www.census.gov/population/socdemo/school/cps2001/tab02.pdf>, accessed March 7, 2006; U.S. Department of Health and Human Services, Head Start Bureau, "Head Start Program Information Report (PIR) for the 1995–1996 Program Year" (Washington, DC: U.S. Department of Health and Human Services, undated); U.S. Department of Health and Human Services, Head Start Bureau, "Head Start Program Information Report (PIR) for the 1997 Program Year" (Washington, DC: U.S. Department of Health and Human Services, undated); U.S. Department of Health and Human Services, Head Start Bureau, "Head Start Program Information Report (PIR) for 1998–1999 Program Year, Summary Report" (Washington, DC: U.S. Department of Health and Human Services, undated); and U.S. Department of Health and Human Services, Head Start Bureau, "Head Start Program Information Report (PIR) for 2001–2002 Program Year, Summary Report" (Washington, DC: U.S. Department of Health and Human Services, undated). For the SIPP, authors' calculation based on U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Fall 1995," *Current Population Reports*, P70-70, Detailed Tables (Washington, DC: U.S. Census Bureau, October 2000), PPL tables 1A and 6A, available from: <http://www.census.gov/population/www/socdemo/child/ppl-138.html>, accessed February 2, 2004; U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1997," *Current Population Reports*, P70-86, Detailed Tables (Washington, DC: U.S. Census Bureau, August 1, 2002), PPL tables 1A and 3A, available from: <http://www.census.gov/population/www/socdemo/child/ppl-964.html>, accessed April 3, 2003; U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1999," Detailed Tables (Washington, DC: U.S. Census Bureau, January 24, 2003), PPL tables 1A and 3A, available from: <http://www.census.gov/population/www/socdemo/child/ppl-168.html>, accessed April 3, 2003; and U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Winter 2002," *Current Population Reports*, P70-101, Detailed Tables (Washington, DC: U.S. Census Bureau, October 2005), PPL tables 1A and 3A, available from: <http://www.census.gov/population/www/socdemo/child/ppl-177.html>, accessed March 7, 2006.

**Table 10.**  
**Children under Age Six Cared for in Nursery and Preschool by SIPP Rotation (1997)**

| Rotation | Month of Survey | Month Surveyed | Nursery and Preschool |                      |
|----------|-----------------|----------------|-----------------------|----------------------|
|          |                 |                | Number                | Percent Distribution |
| 1        | April           | March          | 444,605               | 26.7%                |
| 2        | May             | April          | 489,119               | 29.3%                |
| 3        | June            | May            | 427,924               | 25.7%                |
| 4        | July            | June           | 306,036               | 18.4%                |
| All      | All             | All            | 1,667,684             | 100.0%               |

*Source:* Authors' calculation based on U.S. Census Bureau, 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.

**Day care and other center-based care.** *Compared to benchmark data, the 1997 SIPP missed about 30 percent of the preschoolers with employed mothers who used some form of center-based child care (called “organized care facility” or “organized care” by the SIPP), a category which includes day care centers, Head Start, nursery, and preschool; for those under 200 percent of poverty, it missed by about 40 percent. It appears that these undercounts reflect the undercounts of children in Head Start, nursery, and preschool. We have not calculated the similar estimates for the other years.*

*SIPP data.* “Center-based care” is the umbrella category that includes children in day care centers, Head Start, and nursery/preschool. In SIPP publications, contrary to general usage, this category is called “organized care facility” or “organized care.” The term, however, is not always defined consistently in the Census Bureau’s publications. Sometimes organized facilities include kindergarten and school,<sup>100</sup> other times not.<sup>101</sup> Even in the same publication for the same year, the category is sometimes inconsistently defined. For example, in “Who’s Minding the Kids? Child Care Arrangements: Spring 1997,” table 1’s “organized care facility” category includes school, but table 3’s “organized facility” category does not (listing school under “other arrangement”).<sup>102</sup> The same is true for the 1999 and 2002 detailed tables.<sup>103</sup> Rather than use the SIPP’s ambiguously defined “organized care” label, we use the more conventional term: center-based care. This helps to avoid confusion with other arrangements such as family day care, which might be considered as “organized.”

According to the 1995 SIPP, the number of children (regardless of their mothers’ employment status) under age five in some form of center-based care (not including school) on a

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<sup>100</sup>See Kristin Smith, “Who’s Minding the Kids? Child Care Arrangements: Spring 1997,” *Current Population Reports*, P70-86 (Washington, DC: U.S. Census Bureau, July 2002), table 1, p. 3, available from: <http://www.census.gov/prod/2002pubs/p70-86.pdf>, accessed April 3, 2003.

<sup>101</sup>See U.S. Census Bureau, “Who’s Minding the Kids? Child Care Arrangements: Spring 1999” Detailed Tables (Washington, DC: U.S. Census Bureau, January 24, 2003), “Historical Table: Primary Child Care Arrangements Used by Employed Mothers of Preschoolers: 1985 to 1999,” available from: <http://www.census.gov/population/socdemo/child/ppl-168/tabH-1.pdf>, accessed June 14, 2005.

<sup>102</sup>See Kristin Smith, “Who’s Minding the Kids? Child Care Arrangements: Spring 1997,” *Current Population Reports*, P70-86 (Washington, DC: U.S. Census Bureau, July 2002), table 1 and table 3, pp. 3 and 8, available from: <http://www.census.gov/prod/2002pubs/p70-86.pdf>, accessed December 29, 2003.

<sup>103</sup>Among the detailed tabulations from the 1999 SIPP, the category of “organized care” includes school in tables 1A and 1B, but excludes school in the “Historical Table, Primary Child Care Arrangements Used by Employed Mothers of Preschoolers: 1985 to 1999.” See U.S. Census Bureau, “Who’s Minding the Kids? Child Care Arrangements: Spring 1999” Detailed Tables (Washington, DC: U.S. Census Bureau, January 24, 2003), tables 1A, 1B and “Historical Table: Primary Child Care Arrangements Used by Employed Mothers of Preschoolers: 1985 to 1999,” available from: <http://www.census.gov/population/www/socdemo/child/ppl-168.html>, accessed July 26, 2005.

regular basis was about 5.47 million children (28 percent of all children under age five).<sup>104</sup> In 1997 and 1999, this number fell significantly—to about 3.28 million children (17 percent of all children under age five) in 1997,<sup>105</sup> and to about 3.26 million children (but still only 18 percent of all children under age five) in 1999.<sup>106</sup> In 2002, the absolute number rose slightly to about 3.30 million children (18 percent of all children under age five). (About 20 percent of the reported decline in center-based care enrollment between 1995 and 1997 is accounted for by the SIPP's reported decline in Head Start enrollment during the same period. An additional 70 percent of the decline is accounted for by the SIPP's reported decline in nursery/preschool.)

According to the 1995 SIPP, the number of children under age five with employed mothers using center-based care (not including school) on a regular basis was about 3.93 million children (38.1 percent of all children with employed mothers under age five).<sup>107</sup> In the 1997 SIPP, this number fell to about 2.60 million children (25.7 percent of all children with working mothers under age five),<sup>108</sup> and then rose slightly in 1999 to about 2.63 million children (24.8

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<sup>104</sup>U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Fall 1995," Detailed Tables (Washington, DC: U.S. Census Bureau, October 31, 2000), PPL table 1A, available from: <http://www.census.gov/population/socdemo/child/ppl-138/tab01a.txt>, accessed June 14, 2005. The SIPP reported 5,758,000 children under age five in "organized care" which included 291,000 children who were in school. The number of children in center-based child care is derived by subtracting the number of children in school from the number of children in organized care.

<sup>105</sup>U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1997," Detailed Tables (Washington, DC: U.S. Census Bureau, March 28, 2005), PPL table 1, available from: <http://www.census.gov/population/socdemo/child/ppl-964/tab01.pdf>, accessed June 14, 2005. The SIPP reported 3,863,000 children under age five in "organized care" which included 582,000 children who were in school. The number of children in center-based child care is derived by subtracting the number of children in school from the number of children in organized care.

<sup>106</sup>U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1999," Detailed Tables (Washington, DC: U.S. Census Bureau, January 24, 2003), PPL table 1A, available from: <http://www.census.gov/population/www/socdemo/child/ppl-168.html>, accessed June 14, 2005. The SIPP reported 4,066,000 children under age five in "organized care" which included 809,000 children who were in school. The number of children in center-based child care is derived by subtracting the number of children in school from the number of children in organized care.

<sup>107</sup>U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Fall 1995," Detailed Tables (Washington, DC: U.S. Census Bureau, October 31, 2000), PPL table 1A, available from: <http://www.census.gov/population/socdemo/child/ppl-138/tab01a.txt>, accessed June 14, 2005. The SIPP reported 4,081,000 children under age five with employed mothers in "organized care," which included 154,000 children who were in school. The number of children in center-based child care is derived by subtracting the number of children in school from the number of children in organized care.

<sup>108</sup>U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1997," Detailed Tables (Washington, DC: U.S. Census Bureau, March 28, 2005), PPL table 1, available from: <http://www.census.gov/population/socdemo/child/ppl-964/tab01.pdf>, accessed June 14, 2005. The SIPP reported 2.90 million children under age five with employed mothers in "organized care," which included 303,000 children who were in school. The number of children in center-based child care is derived by subtracting the number of children in school from the number of children in organized care.

percent of all children with working mothers under age five),<sup>109</sup> and rose again in 2002 to about 2.69 million children (27.4 percent of all children with working mothers under age five).<sup>110</sup>

*Benchmark data.* To assess the accuracy of the SIPP's data on center-based care, we compare them to data from the National Household Education Survey (NHES) and the National Survey of America's Families (NSAF). (See box 2 and table A1.) The NHES defines "center-based programs" as "day care centers, nursery schools, prekindergartens, and Head Start programs where children receive early childhood care and education."<sup>111</sup> The NSAF similarly defines center-based care as including "day care centers, nursery schools, prekindergarten, preschools and Head Start programs."<sup>112</sup> (We refer to both benchmark categories as simply "center-based care.")

*Comparability.* In order to compare the SIPP's estimates to those in the NHES and the NSAF, we use only the SIPP estimates of "organized facility care" that exclude school, as neither the NHES nor the NSAF counts of center-based care include school. Without school, this SIPP category contains the same center-based care arrangements as the NHES and the NSAF.

The NHES survey still differs from the SIPP in its population and its timing. Although both the NHES and the SIPP estimate center-based care among "preschool children," each survey defines the term differently. In the SIPP, preschool children are "children under age

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<sup>109</sup>U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1999," Detailed Tables (Washington, DC: U.S. Census Bureau, January 24, 2003), PPL table 1A, available from: <http://www.census.gov/population/www/socdemo/child/ppl-168.html>, accessed June 14, 2005. The SIPP reported 3.16 million children under age five with employed mothers in "organized care," which included 531,000 children who were in school. The number of children in center-based child care is derived by subtracting the number of children in school from the number of children in organized care.

<sup>110</sup>U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Winter 2002," Detailed Tables (Washington, DC: U.S. Census Bureau, October 2005), PPL table 1B, available from: <http://www.census.gov/population/socdemo/child/ppl-177/tab01B.xls>, accessed January 9, 2006. The SIPP reported 3.10 million children under age five with employed mothers in "organized care," which included 422,000 children who were in school. The number of children in center-based child care is derived by subtracting the number of children in school from the number of children in organized care.

<sup>111</sup>U.S. Department of Education, National Center for Education Statistics, "National Household Education Survey of 1999: Methodology Report," *Education Statistics Quarterly* (Washington, DC: U.S. Department of Education, 1999), available from: [http://nces.ed.gov/programs/quarterly/vol\\_2/2\\_4/m\\_section5.asp](http://nces.ed.gov/programs/quarterly/vol_2/2_4/m_section5.asp), accessed November 23, 2005.

<sup>112</sup>Freya L. Sonenstein, Gary J. Gates, Stefanie Schmidt, and Natalya Bolshun, "Primary Child Care Arrangements of Employed Parents: Findings from the 1999 National Survey of America's Families," *Assessing the New Federalism*, Occasional Paper Number 59 (Washington, DC: The Urban Institute, 2002), p. 14, available from: [http://www.urban.org/UploadedPDF/310487\\_OP59.pdf](http://www.urban.org/UploadedPDF/310487_OP59.pdf), accessed February 3, 2005.

five,”<sup>113</sup> whereas in the NHES they are “children 3 to 5 years old who have not entered kindergarten.”<sup>114</sup> To account for this difference, we estimate from the 1997 SIPP the percentage of children ages three to five in center-based care who are not yet in school (39.5 percent).<sup>115</sup>

In addition, our comparisons are based on the 1997 SIPP, whereas the NHES was fielded in 1995 and 1999. To make the 1997 SIPP data on center-based care comparable to the NHES data, we assume a 1997 NHES estimate of children in center-based care (57.2 percent) by averaging the percentages for 1995 (55.1 percent) and 1999 (59.3 percent).<sup>116</sup>

The NSAF and the SIPP are generally more compatible, as both surveys cover the same survey year (1997) and age group (children under age five). To compare arrangements between the surveys, we base our estimates from the SIPP and the NSAF on a child’s “primary” care arrangement, which is defined similarly in both surveys.<sup>117</sup> One difference between the NSAF and the SIPP, however, is that the NSAF estimates are for children with employed “parents,” whereas the SIPP estimates are for children with employed “mothers.” This difference reflects the different methodologies of the two surveys. The SIPP collects child care data by interviewing the “designated parents.” According to the Census Bureau: “In married-couple families, the mother is the designated parent. In single-parent families, the resident parent is the designated parent. If neither parent is in the household, the guardian is the designated parent.”<sup>118</sup> In its publications on child care, the Census Bureau presents data on parental employment status only

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<sup>113</sup>Kristin Smith, “Who’s Minding the Kids? Child Care Arrangements: Spring 1997,” *Current Population Reports*, P70-86 (Washington, DC: U.S. Census Bureau, July 2002), p. 2, available from: <http://www.census.gov/prod/2002pubs/p70-86.pdf>, accessed April 3, 2003.

<sup>114</sup>U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 2000* (Washington, DC: U.S. Department of Education, January 2001), table 48, p. 61, available from: <http://nces.ed.gov/pubs2001/2001034.pdf>, accessed February 3, 2005.

<sup>115</sup>Authors’ calculation from U.S. Census Bureau, “Who’s Minding the Kids? Child Care Arrangements: Spring 1997,” Detailed Tables (Washington, DC: U.S. Census Bureau, March 28, 2005), PPL table 1, available from: <http://www.census.gov/population/socdemo/child/ppl-964/tab01.pdf>, accessed June 14, 2005.

<sup>116</sup>U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 2000* (Washington, DC: U.S. Department of Education, January 2001), table 48, p. 61, available from: <http://nces.ed.gov/pubs2001/2001034.pdf>, accessed February 3, 2005.

<sup>117</sup>See Kristin Smith, “Who’s Minding the Kids? Child Care Arrangements: Spring 1997,” *Current Population Reports*, P70-86 (Washington, DC: U.S. Census Bureau, July 2002), p. 2, available from: <http://www.census.gov/prod/2002pubs/p70-86.pdf>, accessed April 3, 2003; and Freya L. Sonenstein, Gary J. Gates, Stefanie Schmidt, and Natalya Bolshun, “Primary Child Care Arrangements of Employed Parents: Findings from the 1999 National Survey of America’s Families,” *Assessing the New Federalism*, Occasional Paper Number 59 (Washington, DC: The Urban Institute, 2002), p. 18, available from: [http://www.urban.org/UploadedPDF/310487\\_OP59.pdf](http://www.urban.org/UploadedPDF/310487_OP59.pdf), accessed February 3, 2005.

<sup>118</sup>Kristin Smith, “Who’s Minding the Kids? Child Care Arrangements: Spring 1997,” *Current Population Reports*, P70-86 (Washington, DC: U.S. Census Bureau, July 2002), p. 2, available from: <http://www.census.gov/prod/2002pubs/p70-86.pdf>, accessed April 3, 2003.

for mothers, because the vast majority of designated parents in the survey were mothers.<sup>119</sup> (Our calculation from the 1997 SIPP shows that about 95 percent of the designated parents were mothers.) The Census Bureau has published limited data on fathers for 1993 and 1994.<sup>120</sup>

The NSAF, on the other hand, collects child care data by interviewing “the most knowledgeable adult for the focal child,”<sup>121</sup> who is also called the “primary caretaker.”<sup>122</sup> In the NSAF, “the mother of the child was the primary caretaker for 73 percent of the children in [the] sample; the father was the primary caretaker for 23 percent of the sample. Most of the remaining 4 percent of primary caretakers are grandparents, aunts and uncles, and unrelated foster parents.”<sup>123</sup> “Employed parent” in the NSAF is a simplified term for “employed primary caretakers.”<sup>124</sup>

In the absence of other data, we assume that the pattern of child care arrangements for children under age six with employed mothers in the 1997 SIPP is similar to that of children in the same age group with employed parents in the 1997 NSAF.

*Assessment.* We conclude that the NHES and NSAF counts of preschoolers in center-based care are more accurate than the 1997 SIPP’s count. First, the 1995 NHES estimate (53

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<sup>119</sup>Martin O’Connell, U.S. Census Bureau, telephone conversation with the authors, June 28, 2005.

<sup>120</sup>Lynne M. Casper, “My Daddy Takes Care of Me! Fathers as Care Providers,” *Current Population Reports*, P70-59 (Washington, DC: U.S. Census Bureau, September 1997), available from: <http://www.census.gov/prod/3/97pubs/p70-59.pdf>, accessed June 28, 2005.

<sup>121</sup>Freya L. Sonenstein, Gary J. Gates, Stefanie Schmidt, and Natalya Bolshun, “Primary Child Care Arrangements of Employed Parents: Findings from the 1999 National Survey of America’s Families,” *Assessing the New Federalism*, Occasional Paper Number 59 (Washington, DC: The Urban Institute, 2002), p. 33, available from: [http://www.urban.org/UploadedPDF/310487\\_OP59.pdf](http://www.urban.org/UploadedPDF/310487_OP59.pdf), accessed February 3, 2005.

<sup>122</sup>Freya L. Sonenstein, Gary J. Gates, Stefanie Schmidt, and Natalya Bolshun, “Primary Child Care Arrangements of Employed Parents: Findings from the 1999 National Survey of America’s Families,” *Assessing the New Federalism*, Occasional Paper Number 59 (Washington, DC: The Urban Institute, 2002), p. 33, available from: [http://www.urban.org/UploadedPDF/310487\\_OP59.pdf](http://www.urban.org/UploadedPDF/310487_OP59.pdf), accessed February 3, 2005.

<sup>123</sup>Freya L. Sonenstein, Gary J. Gates, Stefanie Schmidt, and Natalya Bolshun, “Primary Child Care Arrangements of Employed Parents: Findings from the 1999 National Survey of America’s Families,” *Assessing the New Federalism*, Occasional Paper Number 59 (Washington, DC: The Urban Institute, 2002), p. 33, available from: [http://www.urban.org/UploadedPDF/310487\\_OP59.pdf](http://www.urban.org/UploadedPDF/310487_OP59.pdf), accessed February 3, 2005.

<sup>124</sup>Freya L. Sonenstein, Gary J. Gates, Stefanie Schmidt, and Natalya Bolshun, “Primary Child Care Arrangements of Employed Parents: Findings from the 1999 National Survey of America’s Families,” *Assessing the New Federalism*, Occasional Paper Number 59 (Washington, DC: The Urban Institute, 2002), p. 33, available from: [http://www.urban.org/UploadedPDF/310487\\_OP59.pdf](http://www.urban.org/UploadedPDF/310487_OP59.pdf), accessed February 3, 2005.



percent)<sup>125</sup> is close to the 1995 SIPP estimate (47 percent).<sup>126</sup> This finding matches our earlier analyses which show the 1995 SIPP to be generally more consistent with administrative data.<sup>127</sup>

Second, when the 1997 SIPP is adjusted for comparability with the 1997 NHES and 1997 NSAF, the latter two surveys show roughly the same undercount of center-based care in the SIPP. The 1997 SIPP estimates are 31 percent lower than the 1997 NHES for children ages three to five not yet in school,<sup>128</sup> and 31 percent lower than the 1997 NSAF for children under age five with employed parents.<sup>129</sup>

Third, the NHES data appear to be more stable over time than the SIPP estimates. The NHES estimates of center-based care for children ages three to five not yet in school show a steady increase across survey years (53 percent in 1991, 55 percent in 1995, 59 percent in 1999, and 56.4 percent in 2001).<sup>130</sup>

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<sup>125</sup>U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 2000* (Washington, DC: U.S. Department of Education, January 2001), table 48, p. 61, available from: <http://nces.ed.gov/pubs2001/2001034.pdf>, accessed February 3, 2005.

<sup>126</sup>U.S. Census Bureau, “Who’s Minding the Kids? Child Care Arrangements: Fall 1995,” Detailed Tables (Washington, DC: U.S. Census Bureau, October 31, 2000), PPL table 1A, available from: <http://www.census.gov/population/socdemo/child/pp1-138/tab01a.txt>, accessed June 14, 2005. The SIPP reported 4,081,000 children under age five with employed mothers in “organized care,” which included 154,000 children who were in school. We derive the number of children in center-based child care by subtracting the number of children in school from the number of children in “organized care.”

<sup>127</sup>The 1995 SIPP data were consistent with the administrative records on Head Start and the CPS data on children in nursery/preschool, kindergarten, and school.

<sup>128</sup>Authors’ calculation from: U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 2000* (Washington, DC: U.S. Department of Education, January 2001), table 48, p. 61, available from: <http://nces.ed.gov/pubs2001/2001034.pdf>, accessed February 3, 2005, and U.S. Census Bureau, Survey of Income and Program Participation (SIPP), 1996 Panel Wave 4, with data files downloaded from the Census Bureau’s ftp site for the SIPP at: [http://www.bls.census.gov/sipp\\_ftp.html#sipp96](http://www.bls.census.gov/sipp_ftp.html#sipp96).

<sup>129</sup>Authors’ calculation from: Kristin Smith, “Who’s Minding the Kids? Child Care Arrangements: Spring 1997,” *Current Population Reports*, P70-86 (Washington, DC: U.S. Census Bureau, July 2002), p. 2, available from: <http://www.census.gov/prod/2002pubs/p70-86.pdf>, accessed April 3, 2003, and Freya L. Sonenstein, Gary J. Gates, Stefanie Schmidt, and Natalya Bolshun, “Primary Child Care Arrangements of Employed Parents: Findings from the 1999 National Survey of America’s Families,” *Assessing the New Federalism*, Occasional Paper Number 59 (Washington, DC: The Urban Institute, 2002), p. 18, available from: [http://www.urban.org/UploadedPDF/310487\\_OP59.pdf](http://www.urban.org/UploadedPDF/310487_OP59.pdf), accessed February 3, 2005.

<sup>130</sup>U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 2000* (Washington, DC: U.S. Department of Education, January 2001), table 48, p. 61, available from: <http://nces.ed.gov/pubs2001/2001034.pdf>, accessed February 3, 2005; and U.S. Census Bureau, *Statistical Abstract of the United States: 2004–2005* (Washington, DC: U.S. Census Bureau, undated), no. 559, p. 363, available from: <http://www.census.gov/prod/2004pubs/04statab/socinsur.pdf>, accessed July 28, 2005.

Fourth, the NSAF data are significantly closer than the SIPP data to the findings of a third survey, the Community Survey of the National Study of Child Care for Low-Income Families (CS).

The CS also defines center-based care for preschool children as including preschool programs, child care centers, and Head Start.<sup>131</sup> The CS and SIPP data are comparable in many respects, but also have some important differences (for which we adjust the data).<sup>132</sup> The CS data and SIPP data are comparable in mode of care (“primary” child care arrangements), the mother’s work status (working mothers), and family poverty status (below 200 percent of poverty). There are three important differences between the two surveys, however. First, the CS estimates are based on “non-parental” child care (defined as including center care, in-home relative care, out-of-home relative care, family child care, and in-home non-relative care, but excluding child care by either parent and child’s self-care), whereas SIPP estimates include parental care. Therefore, to compare the SIPP with the CS, we adjust the SIPP data by subtracting the percentage of children in parental care and redistributing the percentages of children in other care arrangements proportionately so they would equal 100 percent. Second, the CS separately reports the percent of children under age five in center-based care by three age groups (children under age one, children ages one to two, and children ages three to four), whereas the SIPP estimate is for children under age five as a single group. Third, the CS surveyed only those families where the mother is working a minimum of twenty hours. Because the CS does not provide absolute numbers, we calculated the percent of children under age five that were in center-based care by assuming that an equal number of children were in each single age group.

The 1999 SIPP’s estimate for center-based care as a primary arrangement is substantially lower than that of CS. For children under age five with employed mothers in families below 200 percent of poverty, the 1999 SIPP’s estimate (as a percentage of children in only nonparental care) was 27 percent lower than the CS estimate for 1999/2000 (22 percent in SIPP<sup>133</sup> versus 30 percent in CS<sup>134</sup>). For 1999, the NSAF comes much closer to the CS number, finding 34 percent in center-based care. There are a number of reasons why the CS number might differ from the NSAF number, from its minimum number of required work hours to the fact that it is not designed to be nationally representative. Given these limitations and incompatibilities, we do not

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<sup>131</sup>Jean Layzer, Abt Associates, Inc., email message to authors, July 18, 2005.

<sup>132</sup>The CS data are not for precisely the same time period as the 1999 SIPP. The CS was conducted from August 1999 to July 2000, whereas the SIPP was conducted from April to July 1999. This should not preclude comparing the surveys because the proportion of children in center-based care does not change that much from year to year.

<sup>133</sup>Authors’ calculation from U.S. Census Bureau, “Who’s Minding the Kids? Child Care Arrangements: Spring 1999,” Detailed Tables (Washington, DC: U.S. Census Bureau, January 24, 2003), table 2A available from: <http://www.census.gov/population/socdemo/child/ppl-168/tab06.pdf>, accessed October 29, 2003.

<sup>134</sup>Authors’ calculation from Nancy Burstein, Jan I. Layzer, and Kevin Cahill, *National Survey of Child Care for Low-Income Families: Patterns of Child Care Use Among Low-Income Families*, Final Draft (Washington, DC: Abt Associates, Inc., August 1, 2001), p. 4-8.

use it as a benchmark, but instead use it as further evidence of our NSAF benchmark's accuracy over the SIPP.

Fifth, and most importantly, the SIPP's count of center-based care depends on its counts of Head Start, nursery, and preschool. As we discuss earlier, separate analyses of these individual arrangements reveal severe undercounts in the 1997 and 1999 SIPPs. An umbrella category that aggregates these estimates would obviously, at a minimum, suffer from the same undercount.

*Miscount.* Although the 1995 SIPP's estimates of the percentage of children in center-based care appears consistent with the 1995 NHES, the 1997 and 1999 SIPPs substantially undercounted such children, compared to estimates from the NHES and the NSAF. Using the NHES, we conclude that the 1997 SIPP undercounted the proportion of children in center-based care by about 30 percent. Using the NSAF, we conclude that the 1997 SIPP undercounted the proportion of children in families under 200 percent of poverty who used such care by about 40 percent.

The 1997 SIPP estimate of the percentage of children ages three to five not yet in school who used center-based care is 31 percent lower than the 1997 NHES estimate (40 percent in the SIPP<sup>135</sup> versus 57 percent in the NHES<sup>136</sup>). The 1997 SIPP estimate of the percentage of children under age five with employed mothers who used center-based care as the primary care arrangement is 31 percent lower than the 1997 NSAF estimate for children of the same age group with employed parents (22 percent in the SIPP<sup>137</sup> versus 32 percent in the NSAF<sup>138</sup>).

The SIPP's miscount is most severe among low-income children (in families under 200 percent of the federal poverty line). For low-income children under age five with employed mothers, the 1997 SIPP estimate was 41 percent lower than the 1997 NSAF (16 percent in the SIPP versus 27 percent in the NSAF). For children over 200 percent of poverty, the undercount

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<sup>135</sup>Authors' calculation from U.S. Census Bureau, Survey of Income and Program Participation (SIPP), 1996 Panel Wave 4, with data files downloaded from the Census Bureau's ftp site for the SIPP at: [http://www.bls.census.gov/sipp\\_ftp.html#sipp96](http://www.bls.census.gov/sipp_ftp.html#sipp96).

<sup>136</sup>U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 2000* (Washington, DC: U.S. Department of Education, January 2001), table 48, p. 61, available from: <http://nces.ed.gov/pubs2001/2001034.pdf>, accessed February 3, 2005.

<sup>137</sup>Authors' calculation from U.S. Census Bureau, Survey of Income and Program Participation (SIPP), 1996 Panel Wave 4, with data files downloaded from the Census Bureau's ftp site for the SIPP at: [http://www.bls.census.gov/sipp\\_ftp.html#sipp96](http://www.bls.census.gov/sipp_ftp.html#sipp96).

<sup>138</sup>Freya L. Sonenstein, Gary J. Gates, Stefanie Schmidt, and Natalya Bolshun, "Primary Child Care Arrangements of Employed Parents: Findings from the 1999 National Survey of America's Families," *Assessing the New Federalism*, Occasional Paper Number 59 (Washington, DC: The Urban Institute, 2002), table A1, p. 18, available from: [http://www.urban.org/UploadedPDF/310487\\_OP59.pdf](http://www.urban.org/UploadedPDF/310487_OP59.pdf), accessed February 3, 2005.

was 31 percent (24 percent in the SIPP versus 35 percent in the NSAF).<sup>139</sup> The same pattern applies when five-year-olds are included. For low-income children ages zero to five with employed mothers, the 1997 SIPP estimate of the percentage of children in center-based care was 45 percent lower than the 1997 NSAF (17 percent in the SIPP versus 31 percent in the NSAF), compared to a 35 percent undercount for higher-income children (25 percent in the SIPP versus 39 percent in the NSAF).<sup>140</sup>

Based on these comparisons, we conclude that in 1997, the SIPP undercounted the percentage of all preschoolers in center-based care by roughly 30 percent and, among families below 200 percent of poverty, by about 40 percent.

*Explanations.* On the one hand, the SIPP's center-based care category, "organized care," consists of day-care centers, Head Start, and nursery/preschool. Although we have no positive evidence that the SIPP's count of day care is correct, we can account for all of the SIPP's undercount in the broader category of center-based care by its individual undercounts of Head Start and nursery/preschool. (As discussed above, the 1997 and 1999 SIPPs undercount children in Head Start by 60 and 77 percent, respectively, compared to the administrative data. Both the 1997 and 1999 SIPPs undercount children under age five in nursery and preschool by about 75 percent, compared to CPS school enrollment data.)

On the other hand, we have no reason to believe that the SIPP's day-care center estimates are necessarily accurate. In fact, there is likely some amount of respondent confusion between the three major categories of center-based care (and, for that matter, school).

In addition, it is likely that the inclusion of June in the 1997 and 1999 SIPPs caused some degree of undercounting. Table 11 shows that the monthly number of children in day care centers was relatively consistent in March, April, and May. As with other arrangements we have examined, the numbers dropped significantly from May to June: a 16 percent decline in the number of children in day care centers (from 758,020 children to 637,107 children).<sup>141</sup>

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<sup>139</sup>Authors' calculation from Freya L. Sonenstein, Gary J. Gates, Stefanie Schmidt, and Natalya Bolshun, "Primary Child Care Arrangements of Employed Parents: Findings from the 1999 National Survey of America's Families," *Assessing the New Federalism*, Occasional Paper Number 59 (Washington, DC: The Urban Institute, 2002), table A1, p. 18, available from: [http://www.urban.org/UploadedPDF/310487\\_OP59.pdf](http://www.urban.org/UploadedPDF/310487_OP59.pdf), accessed February 3, 2005; and U.S. Census Bureau, Survey of Income and Program Participation (SIPP), 1996 Panel Wave 4, with data files downloaded from the Census Bureau's ftp site for the SIPP at: [http://www.bls.census.gov/sipp\\_ftp.html#sipp96](http://www.bls.census.gov/sipp_ftp.html#sipp96).

<sup>140</sup>Authors' calculation from Kathryn Tout, Martha Zaslow, Angela Romano Papillo, and Sharon Vandivere, "Early Care and Education: Work Support for Families and Developmental Opportunity for Young Children," *Assessing the New Federalism*, Occasional Paper Number 51 (Washington, DC: The Urban Institute, 2001), table A3, p. 22, available from: <http://www.urban.org/UploadedPDF/occa51.pdf>, accessed February 3, 2005; and U.S. Census Bureau, Survey of Income and Program Participation (SIPP), 1996 Panel Wave 4, with data files downloaded from the Census Bureau's ftp site for the SIPP at: [http://www.bls.census.gov/sipp\\_ftp.html#sipp96](http://www.bls.census.gov/sipp_ftp.html#sipp96).

<sup>141</sup>Authors' calculation based on U.S. Census Bureau, 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.

Nevertheless, the SIPP's day-care center counts appear more internally consistent between years than the SIPP's Head Start and nursery/preschool counts. Table 8 shows that the percentages of children in day care centers in the 1997 and 1999 SIPPs are relatively consistent with that in the 1995 SIPP, whereas the percentages of children Head Start and nursery/preschool in 1997 and 1999 were significantly lower. If there is any miscount of children in day-care centers, we lack any comparable source of benchmark data, and we decline to hazard an estimate.

**Table 11.**  
**Children under Age 6 Cared for in Day Care Centers by SIPP Rotation (1997)**

| Rotation | Month of Survey | Month Surveyed | Day Care Center |                      |
|----------|-----------------|----------------|-----------------|----------------------|
|          |                 |                | Number          | Percent Distribution |
| 1        | April           | March          | 738,861         | 25.8%                |
| 2        | May             | April          | 731,032         | 25.5%                |
| 3        | June            | May            | 758,020         | 26.5%                |
| 4        | July            | June           | 637,107         | 22.2%                |
| All      | All             | All            | 2,865,020       | 100.0%               |

Source: Authors' calculation based on U.S. Census Bureau, 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.

**Table 12.**  
**Primary Child Care Arrangements for Children Ages 3 and 4 with Employed Mothers: SIPP vs. NSAF (1997)**

| Type of Primary Arrangement     | Percent of Children |       |
|---------------------------------|---------------------|-------|
|                                 | SIPP                | NSAF  |
| Parent/other <sup>a</sup>       | 27.5%               | 18.0% |
| Organized facility <sup>b</sup> | 26.9%               | 45.0% |
| Relative                        | 26.1%               | 17.0% |
| Other non-relative <sup>c</sup> | 19.5%               | 20.0% |
| Total                           | 100%                | 100%  |

Sources: For the SIPP: 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; for NSAF, Jeffrey Capizzano, Gina Adams, and Freya Sonenstein, *Child Care Arrangements for Children under Five: Variation Across States* (Washington, DC: the Urban Institute, March 2000), table 1. "Primary Child Care Arrangements for Child under Five with Employed Mothers, by Selected Characteristics and State," p. 3, available from: [http://www.urban.org/UploadedPDF/anf\\_b7.pdf](http://www.urban.org/UploadedPDF/anf_b7.pdf), accessed October 28, 2003.

Notes:

<sup>a</sup>"Parent/other" includes parent, child self, and "no regular arrangement."

<sup>b</sup>"Organized facility" includes: child care or day care center, nursery or preschool, Head Start, kindergarten, and school.

<sup>c</sup>"Other non-relative" includes: family day care provider, nanny, and baby-sitter.

# 3

## School Miscounts

This chapter examines the SIPP child care module's data on children in kindergarten and school. Based on our benchmark data, the SIPP has significant and growing miscounts of children under age six in kindergarten and in school. Because our benchmark data come from a single, generally comparable source, the October Supplement to the Current Population Survey, we are comfortable using these data as our benchmark.

**Kindergarten or school.** *Compared to benchmark data, the SIPP provides a generally accurate count of children six years old or older in kindergarten or school. The SIPP's count of children under six, however, suffers from miscounts similar to those we find in other areas. Following the usual pattern, the 1995 SIPP is the most reliable, counting about 90 percent of the three- and four-year-olds who were in kindergarten or school (probably first grade). The 1997 SIPP, however, overcounts three- and four-year-olds in kindergarten or school by 88 percent, and at the same time misses about 23 percent of the five-year-olds. The 1999 SIPP overcounts three- and four-year-olds in kindergarten or school by 166 percent, and the 2002 SIPP overcounts such children by 153 percent.*

*SIPP data.* According to the 1997 SIPP, the number of children under age six in kindergarten or school was 3.14 million (2.57 million five-year-olds and 573,000 three- and four-year-olds).<sup>142</sup> Although we do not have data on five-year-olds from the 1995, 1999, and 2002 SIPPs, we do have data for three- and four-year-olds for these years: 291,000 in 1995, 809,000 in 1999, and 801,000 in 2002.

*Benchmark data.* To assess the accuracy of the SIPP's data on kindergarten and school attendance, we compare them to data from the CPS October School Enrollment Supplement. As before, the 1997 SIPP's timing at the end of the school year means that the October CPS data for the same school year comes from October 1996 rather than 1997 (We compare the figures for five-year-olds only for 1996/1997, because the SIPP figures come from our own analysis of the 1997 SIPP data, which we have not performed for the 1995, 1999, or 2002 SIPPs.)

*Comparability.* As discussed above, the CPS and SIPP figures for the number of children in school are not exactly comparable. The CPS counts the number of children enrolled in school, whereas the SIPP counts those attending school in the survey month. The enrollment figures should be higher than the attendance figures, as some enrolled children may have missed school in a particular month, but this should not be a large difference.

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<sup>142</sup>Authors' calculations from U.S. Census Bureau, 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.

*Assessment.* For the reasons given above, the CPS nursery/preschool enrollment survey data appear to be more accurate than the SIPP data.

*Miscount.* Compared to the 1996 CPS, the 1997 SIPP shows moderate differences in the *total* number of children under six years old who are in school. For all children under age six, we can only compare the difference for 1996/1997, when the number enrolled in school was about 15 percent lower in the SIPP (3.1 million) than in the CPS (3.6 million).

For specific age groups, however, the differences are much larger. For five-year-olds alone, the 1996 CPS counted 3.3 million children in kindergarten or elementary grade school,<sup>143</sup> compared to SIPP's count of only 2.6 million children, 23 percent less.<sup>144</sup> The percentages of five-year-olds enrolled also differed significantly, with the CPS reporting that 80 percent were enrolled while the SIPP reports only 57 percent, 71 percent less (see table 13). The 1997 SIPP overestimates the number of three- and four-year-olds in kindergarten or school by about 88 percent (573,000 in the SIPP versus 305,000 in the CPS), the 1999 SIPP overestimates the number by about 166 percent (809,000 in the SIPP versus 304,000 in the CPS), and the 2002 SIPP overestimates the number by about 153 percent (801,000 in the SIPP versus 369,000 in the CPS).

The 1995 SIPP estimate seems about right, as usual. Its estimate is lower than that of the CPS, but only by about 10 percent (291,000 in the SIPP versus 322,000 in the CPS). This difference is not unexpected because the SIPP estimates attendance whereas the CPS estimates enrollment, and attendance should be lower than enrollment.

*Explanations.* Part of the overcount of three- and four-year-olds in kindergarten or school for 1997 and 1999 may be the result of erroneous proxy responses. As discussed below, the SIPP has had proxy response rates as high as 30 percent and even 40 percent.<sup>145</sup> Some of the proxies may have confused nursery or preschool with kindergarten or school, and reported children in nursery or preschool as in kindergarten or school. Confused proxy response, however, does not adequately explain the undercount. As mentioned above, the 1995 SIPP, which reports the highest incidence of proxy response, contains the most accurate estimate of three- and four-year-

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<sup>143</sup>U.S. Census Bureau, "School Enrollment—Social and Economic Characteristics of Students: October 1996," *Current Population Reports*, P20-500 (Washington, DC: U.S. Census Bureau, June 1998), table 3, "Single Grade of Enrollment and High School Graduation Status of People 3 Years Old and Over, by Age (Single Years for 3 to 24 Years), Sex, Race, and Hispanic Origin: October 1996," available from: <http://www.census.gov/prod/3/98pubs/p20-500u.pdf>, accessed December 8, 2005.

<sup>144</sup>Authors' calculations from U.S. Census Bureau, 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.

<sup>145</sup>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.



olds in kindergarten or school. As proxy response rates dropped in the 1997 and 1999 SIPPs, the overcount significantly increased.

Another part of the overcount may be erroneous response caused by parental confusion. Parents with children in nursery or preschool may have indicated their care arrangements as school, creating an undercount in nursery/preschool and an overcount in school. As discussed above, however, we believe that the structure of the question is unlikely to result in this particular kind of confusion. Thus, although it may be a factor, parental confusion probably accounts for no more than a small part of the undercount.

As for the five-year-olds, as we will see, the most likely explanations for the SIPP's substantial undercount in kindergarten or school are (1) the SIPP's inclusion of the transition month of June and (2) age shifting caused by different reference periods.

The 1997 and 1999 SIPPs included a transition month (June) in the survey. Children are less likely to be in school during the entire month of June than in prior months. The 1997 SIPP estimates show that five-year-olds were significantly less likely to be in school in June than in March, April, and May: 35 percent in June versus 69 percent in March, 63 percent in April, and 61 percent in May.<sup>146</sup> (See figure 1.)

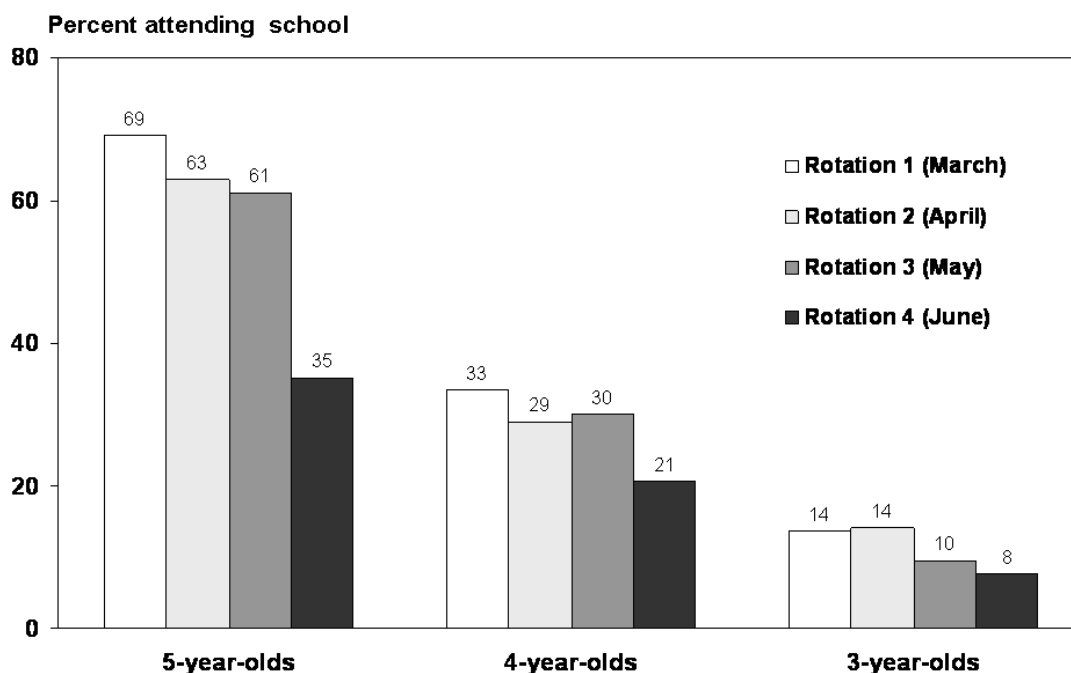
Moreover, parents may have been more likely to shift the types of child care arrangements they used in June than in March, April, or May. For instance, according to the 1997 SIPP, the proportion of preschool children (birth to age four) of working mothers with no regular arrangement in June (9 percent) was at least 50 percent higher than those in March (5 percent), April (6 percent), and May (6 percent).<sup>147</sup>

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<sup>146</sup>Authors' calculation based on U.S. Census Bureau, 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.

<sup>147</sup>Authors' calculation based on U.S. Census Bureau, 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.

**Figure 1.**  
**School Attendance by Rotation Group in the 1997 SIPP**



Source: Authors' calculation from U.S. Census Bureau, SIPP 1996 Panel Wave 4 child care module, with data downloaded from the DataFerrett, <http://ferrett.bls.census.gov/cgi-bin/ferret> (accessed March, 2001).

Given the nature of the question about school attendance in the 1997 SIPP questionnaire,<sup>148</sup> however, it is puzzling that the proportion of five-year-olds in school declined so much in June 1997, because a large part of June was within the school year. Nonetheless, a striking gap remains even when rotation group four is excluded, with the CPS reporting an 80 percent enrollment rate and the SIPP reporting a 64 percent attendance rate.<sup>149</sup> (See table 13.) We have not conducted our own analysis of the 1999 or 2002 SIPP data.<sup>150</sup>

<sup>148</sup>The question asked whether a child “usually” attends school in the last month. See U.S. Census Bureau, “Child Care Topical Module,” available from: [http://www.sipp.census.gov/sipp/top\\_mod/1996/quests/wave4/childcar.htm](http://www.sipp.census.gov/sipp/top_mod/1996/quests/wave4/childcar.htm), accessed December 19, 2000.

<sup>149</sup>For the SIPP, authors' calculations from U.S. Census Bureau, 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; for CPS: U.S. Census Bureau, “School Enrollment—Social and Economic Characteristics of Students: October 1997,” *Current Population Reports*, P20-516 (Washington, DC: U.S. Census Bureau, 1999), p. 8, table 3, available from: <http://www.census.gov/prod/99pubs/p20-516u.pdf>, accessed December 31, 2001.

<sup>150</sup>The 2002 SIPP does not include June, but we are unable to use it for a direct comparison with 1997 SIPP data because we do not have separate 2002 attendance figures for five-year-olds.

Much of the disparity may be attributable to age shifting, which results from the survey being given so long after school enrollment. Between the CPS school enrollment survey month (October) and the SIPP reference month (June of the next year), all the children are about nine months older, so that many of them would shift from being four-year-olds to being five-year-olds. Hence, most of the five-year-olds in the SIPP were just four years old when the CPS was fielded and were not eligible to enter kindergarten at the time school started. This explanation, however, makes the SIPP's nearly 188 percent overcount of three- and four-year-olds in school in 1997 and its 266 percent overcount in 1999 even more inexplicable because its effect would be in the opposite direction.

**Table 13.**  
**Percent of School Enrollment (Attendance) for Children Ages 3 to 14 during School Session:**  
**October CPS (1996) vs. SIPP Rotations 1, 2, and 3 (1997)**  
 (numbers in thousands)

| Age  | October 1996 CPS |                | Spring 1997 SIPP Rotations 1, 2, & 3 |                |
|------|------------------|----------------|--------------------------------------|----------------|
|      | Enrolled         | Did Not Enroll | Attended                             | Did Not Attend |
| 3    | 1.2              | 98.8           | 12.3                                 | 87.7           |
| 4    | 6.2              | 93.8           | 30.8                                 | 69.2           |
| 5    | 79.9             | 20.1           | 64.4                                 | 35.6           |
| 3-5  | 29.5             | 70.5           | 36.8                                 | 63.2           |
| 6    | 94.9             | 5.1            | 92.8                                 | 7.2            |
| 7    | 97.6             | 2.4            | 94.4                                 | 5.6            |
| 8    | 96.7             | 3.3            | 93.8                                 | 6.2            |
| 9    | 97.3             | 2.7            | 95.3                                 | 4.7            |
| 10   | 97.9             | 2.1            | 95.4                                 | 4.6            |
| 11   | 97.0             | 3.0            | 95.7                                 | 4.3            |
| 12   | 97.7             | 2.3            | 97.1                                 | 2.9            |
| 13   | 98.3             | 1.7            | 96.6                                 | 3.4            |
| 14   | 93.2             | 6.8            | 96.3                                 | 3.7            |
| 6-14 | 97.5             | 2.5            | 95.2                                 | 4.8            |
| All  | 80.0             | 20.0           | 79.9                                 | 20.1           |

*Sources:* for CPS: U.S. Census Bureau, "School Enrollment—Social and Economic Characteristics of Students: October 1996," *Current Population Reports*, P20-500 (Washington, DC: U.S. Census Bureau, June 1998), table 3, "Single Grade of Enrollment and High School Graduation Status of People 3 Years Old and Over, by Age (Single Years for 3 to 24 Years), Sex, Race, and Hispanic Origin: October 1996," available from: <http://www.census.gov/prod/3/98pubs/p20-500u.pdf>, accessed December 8, 2005; for the SIPP: Calculated from U.S. Census Bureau, SIPP 1996 Panel Wave 4 with data downloaded from Ferret, available from: <http://ferret.bls.census.gov/cgi-bin/ferret> accessed March 2001.

*Notes:* The SIPP data in this table exclude June data of rotation 4 that were collected in July. For children ages three to five, school includes nursery/preschool, Head Start, kindergarten, and elementary school. For children ages six to fourteen, school includes elementary and high school.

**Age shifting.** *The serious age shifting problem that was caused by the timing of the 1997 and 1999 SIPPs contributed to undercounts of children in Head Start and nursery/preschool, reduced the count of five-year-olds in kindergarten or school by roughly two-thirds, and distorted the estimated pattern of child care arrangements, particularly for children under age six. Although the 2002 SIPP—which was conducted two months earlier in the year than the 1997 and 1999 SIPPs—shows slight improvement in the accuracy of some of its estimates, age shifting still seems to contribute to an undercount of roughly half of the five-year-olds in kindergarten.*

The timing of the 1997 and 1999 SIPPs, whose child care modules were fielded at the end of the school year, leaves the child care data particularly vulnerable to age shifting. Because the SIPP questionnaire has separate lists of possible arrangements for younger children (ages zero to five) and for older children (ages six to fourteen), this has particularly serious ramifications for five-year-olds who turn six in the months between school enrollment and the SIPP. Older children in Head Start and nursery/preschool, in particular, are not counted in these arrangements by the SIPP if they have already turned six. Age shifting also potentially reduces the count of five-year-olds in kindergarten or school by roughly two-thirds, and further complicates cross-year comparisons of SIPP data, as different years have fielded their child care modules at different points in the calendar year.

Children whose birthdays fall between the school enrollment period and a survey's reference month (when the years of age were recorded) turn one year older during this interval. The change in a child's age between the school enrollment period and the month when the child's age is counted in a survey is called "age shifting."

Age shifting causes four problems in child care survey data, unless the survey is conducted during the school enrollment period. First, school-age children whom the survey cannot recognize as using preschool arrangements (including Head Start and nursery) are misclassified if, at the time of enrollment, they were young enough to enroll in such an arrangement. Second, the four-year-old preschoolers who turn age five after the school enrollment period may be reported as "gradeschoolers," resulting in undercounts of preschool-age children (and corresponding overcounts of school-age children). Third, the tabulations of child care arrangements and schooling by age from surveys are inaccurate, because many children's ages have changed since the school enrollment period. Fourth, the cross-year comparisons are problematic if a child care survey changes its timing from year to year. The SIPP child care data are severely affected by these three problems.

The age shifting problem in the SIPP is more severe than in the October CPS and the NHES because the SIPP child care module has traditionally lagged behind the school enrollment season more than the CPS and the NHES, especially the 1997 and 1999 SIPPs. The extent of age shifting varies according to the timing of a survey. The closer the timing of a survey to the school enrollment period, the smaller its age-shifting problem. Conversely, the larger the interval between the school enrollment period and the survey's reference month, the greater its age-shifting problem. As discussed earlier, with the passage of each month following the school-enrollment period, an additional one-twelfth of the children (on average) turns one year older.

The annual CPS School Enrollment Supplement is conducted in October (which is also its reference month for age),<sup>151</sup> one month after school enrollment. This results in age-shifting for approximately one-twelfth of children. The NHES sets the cutoff date for a child's age as December 31 of the previous year, more than three months after school enrollment, which led to age-shifting for more than approximately three-twelfths (or one-quarter) of the children. Like the NHES, the 1995 SIPP also used December as the reference month, three months after the school enrollment month, with presumably similar effects. The 1997 and 1999 SIPPs, however, used June as the reference month,<sup>152</sup> nine months after school enrollment, which led to age-shifting for nine-twelfths (or three-quarters) of children.

The 1995, 1997, 1999, and 2002 SIPP questionnaires present respondents with two different lists of possible child care arrangements, depending on the child's age. For children ages zero and five, the SIPP's options include preschool arrangements such as Head Start and nursery/preschool, but exclude sports, clubs, and before- and after-school programs. For children ages six to fourteen, the latter groups are included, but Head Start and nursery/preschool are not. (See Table 18.)

This separation seems reasonable, considering that six-year-olds are, as a rule, no longer eligible for Head Start and are eligible for school. One would expect very few, if any, six-year-olds to be enrolled in Head Start or nursery/preschool. Age shifting in the 1997, 1999, and 2002 SIPPs, however, makes such a distinction between five- and six-year-olds much more problematic. For example, a child who enrolled in Head Start or nursery/preschool at age five, but who turned six before June, would have counted as a six-year-old in the 1997 and 1999 SIPPs. Because the list of arrangements for six-year-olds does not include Head Start or nursery/preschool, the respondents would not have had the accurate response available to them. The inevitable outcome is an undercount in the excluded arrangement and a miscount in whatever category the child is ultimately assigned.

Cross-year comparisons of the SIPP child care data are difficult due to the varied levels of age-shifting from year to year. The CPS and the NHES provide a more consistent series for measuring kindergarten attendance, because each uses the same month as the reference month for children's ages. The SIPP child care modules, however, were fielded in six different time frames and used five different "reference months": March for the 1985 SIPP, November for the

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<sup>151</sup>U.S. Census Bureau, "Variable Documentation" for CPS School Enrollment Supplement 1994-2000, variable *PRTAGE*, available from: <http://ferret.bls.census.gov/>, accessed January 14, 2001.

<sup>152</sup>In defining preschool- and school-age children, the SIPP uses the child's age in the fourth month of the reference period (December for the 1995 SIPP child care module, and June for the 1997 and 1999 SIPP child care modules). According to Martin O'Connell of the Census Bureau, in the SIPP child care module the age of children is set as of the fourth month of the reference period, which was December for the 1995 SIPP panel and June for the 1997 and 1999 SIPP panels. O'Connell said that this procedure is followed in order to be consistent with the SIPP's general weighting and data editing procedures. Martin O'Connell, U.S. Census Bureau, email message to authors, February 1, 2005.

1986 and 1987 SIPPs, December for the 1988 to 1995 SIPPs, June for the 1997 and 1999 SIPPs, and April for the 2002 SIPP. As a result, the extent of age-shifting varies from year to year in the SIPP child care data—making the cross-year comparisons difficult.

Age shifting affects the data on child care and school attendance, particularly for five-year-olds. Most children enter kindergarten at age five. The pattern of child care arrangements changes dramatically for five-year-olds after they enter kindergarten. However, five-year-olds can be either preschoolers or school-age children—those whose birthdays are prior to the public school enrollment cutoff dates are school-age children; and those who have turned five after the cutoff dates are still preschool children. (Below we discuss how the SIPP defines these terms exclusively by the child's age.) The patterns of child care arrangements for in-school five-year-olds are different from preschool five-year-olds. For example, in the 1997 SIPP, the in-school five-year-olds are 45 percent less likely to use center-based care than the preschool five-year-olds (17.9 percent versus 32.4 percent).<sup>153</sup>

Age shifting also severely affects the patterns of child care arrangements for preschool children because the patterns of child care vary significantly across age groups. For example, data in surveys and administrative records show that four-year-olds are much more likely to use center-based care than are three-year-olds. According to the NHES, in December 1999, 46 percent of the three-year-olds and 69 percent of four-year-olds were in center-based programs;<sup>154</sup> according to the CPS, in October 1999, 38 percent of three-year-olds were in nursery and 61 percent of four-year-olds were in nursery.<sup>155</sup> With the passage of each month, the proportion of preschool children of each age in center-based care decreases due to age-shifting.

Comparing estimates of primary child care arrangements for in-school and not-in-school five-year-olds in the 1997 SIPP dramatically illustrates this skewing. Table 14 shows that in-school five-year-olds were more likely than those not in school to be cared for by relatives (55 percent versus 47 percent) and less likely to use non-relative care (32 percent versus 46 percent). Further, in-school five-year-olds were more likely than those not in school to care for themselves (1 versus 0 percent), or to have no regular child care arrangement (12 percent versus 7 percent). The divergence underscores our belief that the Census Bureau should reconsider its definition of preschool children, especially if the survey period lags behind the school enrollment season.

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<sup>153</sup>Authors' calculation based on U.S. Census Bureau, 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.

<sup>154</sup>U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 2000* (Washington, DC: U.S. Department of Education, January 2001), table 48, p. 61, available from: <http://nces.ed.gov/pubs2001/2001034.pdf>, accessed February 3, 2005.

<sup>155</sup>Authors' calculation from U.S. Census Bureau, "School Enrollment—Social and Economic Characteristics of Students: October 1999," *Current Population Reports*, P20-533 (Washington, DC: U.S. Census Bureau, March 2001), table 2, "Single Grade of Enrollment and High School Graduation Status of People 3 Years Old and Over, by Age (Single Years for 3 to 24 Years), Sex, Race, and Hispanic Origin: October 1999," available from: <http://www.census.gov/population/socdemo/school/p20-533/tab02.pdf>, accessed October 24, 2005.





**Table 14.**  
**Primary Child Care Arrangements for Children Age Five with Working Mothers by School Attendance: SIPP (1997)**

| Primary Child Care Arrangements | Percent of Children |               |
|---------------------------------|---------------------|---------------|
|                                 | In School           | Not in School |
| Relative                        | 55.1%               | 47.3%         |
| Mother while working            | 4.0%                | 2.8%          |
| Father                          | 23.1%               | 19.9%         |
| Sibling                         | 2.8%                | 1.3%          |
| Grandparent                     | 19.3%               | 16.6%         |
| Other relative                  | 5.9%                | 6.7%          |
| Non-relative                    | 31.8%               | 46.0%         |
| Organized facility              | 17.9%               | 32.4%         |
| Family day care provider        | 5.7%                | 5.8%          |
| Other non-relative              | 8.2%                | 7.8%          |
| Self-care                       | 1.2%                | 0.2%          |
| No regular arrangement          | 11.8%               | 6.5%          |

*Source:* Authors' calculation based on Survey of Income and Program Participation (SIPP) 1996 Panel Wave 4 child care module with data downloaded from: <http://www.bls.census.gov/ferretftp.htm>, accessed March 2001.

*Note:* Organized facilities include child care/day care center, nursery/preschool, and Head Start.

The timing of the 1997 SIPP reduced the kindergarten attendance rate for five-year-olds by roughly two-thirds. The following four equations show the magnitude of the reduction. Equations (1a) and (1b) are formulas for the attendance rate during the school enrollment season, where Equation (1b) evolves from Equation (1a). Equations (2a) and (2b) are formulas for the attendance rate during the survey period, where Equation (2b) evolves from Equation (2a). These equations assume that: (1) the age cutoff date for kindergarten and school enrollment is September 30, because it is roughly the average cutoff date among the states; (2) all children age six by the cutoff date did not enroll in kindergarten, they enrolled in grade school instead; (3) all children age four by the cutoff date did not enroll in kindergarten because they were not eligible to do so; and (4) an equal number of children had birthdays in each month.

Equation (1a) is the formula for the 1996 school enrollment rate for children age five, where  $K5$  represents children age five, and 96-9 represents September 1996. The enrollment rate for children age five equals: the sum of enrolled children who reached age five between October 1995 and September 1996 divided by the sum of all children who reached age five between October 1995 and September 1996.

Equation (1a). School Enrollment Rate for Five-Year-Olds: School Year

$$K5_{96-9}enroll\_rate = \frac{\sum_{enrolled\_K5birth\_oct95-sep96}}{\sum_{All\_K5birth\_oct95-sep96}} \quad (1a)$$

Children who reached age five between October 1995 and September 1996 can be separated into two groups: those with birth months between October 1995 and June 1996 and those with birth months between July 1996 and September 1996. Therefore, Equation 1a can be expressed as Equation (1b):

Equation (1b). School Enrollment Rate for Five-Year-Olds: School Year—Modified

$$K5_{96-9}enroll\_rate = \frac{\sum_{enrolled\_K5birth\_oct95-june96} + \sum_{enrolled\_K5birth\_july96-sep96}}{\sum_{All\_K5birth\_oct95-june96} + \sum_{All\_K5birth\_july96-sep96}} \quad (1b)$$

Equation (2a) is the formula for the school enrollment rate for children age five in June 1997 (the age cutoff date for the 1997 SIPP), where *K5* represents children age five, and *97-6* represents June 1997. The enrollment rate for children age five is the sum of the enrolled children who reached age five between July 1996 and June 1997 divided by the sum of all children who reached age five between July 1996 and June 1997.

Equation (2a). School Enrollment Rate for Five-Year-Olds: 1997 SIPP Period

$$K5_{97-6}enroll\_rate = \frac{\sum_{enrolled\_K5birth\_july96-june97}}{\sum_{All\_K5birth\_july96-june97}} \quad (2a)$$

Children who reached age five between July 1996 and June 1997 can be separated into two groups: those whose birth months were between July 1996 and September 1996, and those whose birth months were between October 1996 and June 1997. Therefore, Equation 2a can be expressed as Equation (2b):

Equation (2b). School Enrollment Rate for Five-Year-Olds: 1997 SIPP Period—Modified

$$K5_{97} - 6enroll\_rate = \frac{\sum_{Enrolled\_K5birth\_july96-sep96} + \sum_{Enrolled\_K5birth\_oct96-june97}}{\sum_{All\_K5birth\_july96-sep96} + \sum_{All\_K5birth\_oct96-june97}}$$

(2b)

A comparison of equations (1b) and (2b) clarifies how these declines in enrollment occur. First, compare the denominators between the two equations: children who turned six are no longer included in the denominator of Equation (2b). The loss, however, is offset by children who were four years old and who had turned five between October 1996 and June 1997. Therefore, the net size of the denominators remains the same. Then, compare the numerators of equations (1b) and (2b): the numerator in Equation (2b) is about only one-third of the numerator in Equation (1b). The reason is that children who were enrolled in kindergarten and turned six are no longer included in the numerator. But this number is not offset by kindergartners who turned age five between October 1996 and June 1997. In the numerator, *Enrolled\_k5birth\_oct96-june97* is zero (0)—these children had been four years old during the latest school enrollment season and were not eligible for kindergarten enrollment. In effect, the eight-month difference between the 1996 school enrollment season and the 1997 SIPP survey period reduced the kindergarten attendance rate by approximately 67 percent.<sup>156</sup>

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<sup>156</sup>We consider the estimation from the model used in the equations conservative for two reasons. First, the model used in these equations assumes the school year as a full year. The assumption does not take the summer vacation months (June, July, and August) into consideration. One-quarter of the 1997 SIPP survey sample was comprised of children in care/schooling in June. This inclusion of a summer vacation month probably further depressed the school/kindergarten attendance rate, as explained later. Second, the survey recorded the children's chronological age as of the middle of June ("the fourth month of the reference period"). We use May 30 as the age cutoff date for ease of calculations.

## 4

# Other Data Inaccuracies

The SIPP's child care reports have other problems, including a misleading definition of "regular" arrangements, an undercount of child care subsidies, uncertain and highly volatile data on parental expenditures, and a lack of detailed data on parental copayments. This chapter examines these problems, using benchmark data where applicable.

**"Regular" arrangements.** *Although there are no benchmark data, it appears that, after 1995, the SIPP substantially overstates the number of children with no "regular" child care arrangement. In fact, the very concept seems wrongly defined and applied. As asked, the question seems to include children whose arrangement changed during a month, so that they actually had two regular arrangements in the same month. The better approach is to consider these children in some specific arrangement and to distribute them in accordance with general patterns.*

*SIPP data.* A "regular arrangement" is defined by the SIPP as one that was used "at least once a week during the past month."<sup>157</sup> Having a regular arrangement thus means that the child was in the same arrangement at least once during each week of the "past month." According to Kristin Smith of the Census Bureau, not having any regular child care arrangement does not mean that no child care was provided, but "may indicate instability in child care arrangements or difficulty in identifying what is regularly used."<sup>158</sup> Similarly, Freya L. Sonenstein, Gary J. Gates, Stefanie Schmidt, and Natalya Bolshun, at the time researchers at the Urban Institute, explain in the NSAF child care report:

Because the NSAF focuses on *regular* child care arrangements, preschool- and school-age children in the parent/other category may also be from families in which the primary caretaker is patching together a series of child care arrangements, none of which would be considered regular. In addition, some of these children may actually be left alone but the parents are uncomfortable reporting this situation to the interviewer. These cases are

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<sup>157</sup>U.S. Census Bureau, "Child Care Topical Module," available from: [http://www.sipp.census.gov/sipp/top\\_mod/1996/quests/wave4/childcar.htm](http://www.sipp.census.gov/sipp/top_mod/1996/quests/wave4/childcar.htm), accessed December 19, 2000.

<sup>158</sup>Kristin Smith, "Who's Minding the Kids? Child Care Arrangements: Fall 1995," *Current Population Reports*, P70-70 (Washington, DC: U.S. Census Bureau, 2000), p. 3, available from: <http://www.census.gov/prod/2000pubs/p70-70.pdf>, accessed November 21, 2001.

included in the parent/other care category, but the extent of their prevalence is unknown.<sup>159</sup>

(Below, we describe the reasons for our partial disagreement with these views.)

According to the SIPP, a significant and troubling number of children with employed mothers had no “regular” child care arrangement after 1995. In that year, only 1 percent of children (328,000) were counted as having no regular arrangement,<sup>160</sup> but according to the relevant published reports, that figure rose to 21 percent (7.04 million) in 1997,<sup>161</sup> to 20 percent (7.14 million) in 1999,<sup>162</sup> and a startling 28 percent (10.06 million) in 2002.<sup>163</sup>

Below, we explain the rise between 1995 and 1997 as the result of a change in the relevant question and in the structure of the SIPP questionnaire. The sharp rise between 1999 and 2002, however, is the result of a Census Bureau error/mistake. Prior to 2002, data for self-employed mothers were erroneously omitted in SIPP reports from the data for employed mothers.<sup>164</sup> The 2002 SIPP report fixes the mistake for that year, but provides only limited corrected information for prior years. In the following discussion, we present (as best we can) the data on children without regular arrangements corrected for this earlier error.

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<sup>159</sup>Freya L. Sonenstein, Gary J. Gates, Stefanie Schmidt, and Natalya Bolshun, “Primary Child Care Arrangements of Employed Parents: Findings from the 1999 National Survey of America’s Families,” *Assessing the New Federalism*, Occasional Paper Number 59 (Washington, DC: The Urban Institute, 2002), p. 2, available from: [http://www.urban.org/UploadedPDF/310487\\_OP59.pdf](http://www.urban.org/UploadedPDF/310487_OP59.pdf), accessed February 3, 2005.

<sup>160</sup>Authors’ calculation based on U.S. Census Bureau, “Who’s Minding the Kids? Child Care Arrangements: Fall 1995,” *Current Population Reports*, P70-70, Detailed Tables (Washington, DC: U.S. Census Bureau, October 2000), PPL tables 1A, 1B, 6A, and 6B, <http://www.census.gov/population/www/socdemo/child/ppl-138.html>, accessed April 18, 2006.

<sup>161</sup>Authors’ calculation based on U.S. Census Bureau, “Who’s Minding the Kids? Child Care Arrangements: Spring 1997,” *Current Population Reports*, P70-86, Detailed Tables (Washington, DC: U.S. Census Bureau, August 1, 2002), PPL tables 1 and 3, <http://www.census.gov/population/www/socdemo/child/ppl-964.html>, accessed April 18, 2006.

<sup>162</sup>Authors’ calculation based on U.S. Census Bureau, “Who’s Minding the Kids? Child Care Arrangements: Spring 1999,” Detailed Tables (Washington, DC: U.S. Census Bureau, January 24, 2003), PPL tables 1A, 1B, 3A, and 3B, available from: <http://www.census.gov/population/www/socdemo/child/ppl-168.html>, accessed April 18, 2006.

<sup>163</sup>Authors’ calculation based on U.S. Census Bureau, “Who’s Minding the Kids? Child Care Arrangements: Winter 2002,” Detailed Tables (Washington, DC: U.S. Census Bureau, October 2005), PPL tables 1A, 1B, 3A and 3B, available from: <http://www.census.gov/population/www/socdemo/child/ppl-177.html>, accessed April 18, 2006.

<sup>164</sup>Prior to 2002, the SIPP reports counted as “employed” only those mothers who worked for one or more employers and who were not self-employed. The failure to count self-employed mothers as employed was, according to the Census Bureau, the unintentional result of a coding error. This error went undiscovered until the preparation of the 2002 SIPP report. This mistake means that we must compare separately the pre-2002 SIPP data for employed mothers (excluding self-employed mother) and the 2002 SIPP data (including self-employed mothers).

For children under age five, the 1995 SIPP found a relatively small number of children with employed mothers (not counting those who were self-employed) with no regular child care arrangement (180,000 children or 2 percent). But in 1997 and 1999, that number rose considerably (672,000 children or 7 percent, and 566,000 children or 5 percent, respectively). Remember that these figures omitted self-employed mothers. Although we do not have a similar figure for 2002 (that is, employed mothers without the self-employed), we think it is probably about the same (between 5 and 7 percent). We reach this conclusion because the data that we do have shows that the 2002 SIPP's rate, which includes self-employed mothers, is roughly the same as the 1997 and 1999 rates as recalculated by the Census Bureau to include them (about 12 percent in 1997, about 10 percent in 1999, and about 11 percent in 2002).<sup>165</sup>

For five- to fourteen-year-olds, the percent of children with employed mothers (without data from self-employed mothers) having no regular arrangement was about 27 percent in both the 1997 and 1999 SIPPs. With the inclusion of self-employed mothers (the only data available to us for 2002), the number rose to about 48 percent.<sup>166</sup> (Data for 1995 are not available for five- to fourteen-year-olds, nor are revised 1997 and 1999 data that include self-employed mothers.)<sup>167</sup>

Even for the mothers working full-time, the 1997, 1999, and 2002 SIPPs reported high levels of no regular arrangements. (In this instance, we can directly compare the 2002 SIPP with the earlier years because its breakdown of full-time and part-time working mothers does not include those who were self-employed.) For 1997, the SIPP found no regular arrangements for 9 percent of preschool children with part-time working mothers and 6 percent of those with full-

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<sup>165</sup>Authors' calculation based on Julia Overturf Johnson, "Who's Minding the Kids? Child Care Arrangements: Winter 2002," *Current Population Reports*, P70-101 (Washington, DC: U.S. Census Bureau, October 2005), table 3, <http://www.census.gov/prod/2005pubs/p70-101.pdf>, accessed February 27, 2006. In its latest publication on child care (October 2005), the Census Bureau tabulates cross-year comparisons of the patterns of the primary child care arrangements of preschoolers with employed mothers for 1985 to 2002. In this table, the Census Bureau has revised the 1997 and 1999 data to include the children with self-employed mothers (about 925,000 children in 1997 and about 810,000 children in 1999), to make the data from 1997 to 2002 more compatible. In the footnote, the Census Bureau states: "Starting with the 1997 data, edits of employment categories were changed to better capture arrangements other than wage and salary employment, as well as including the self-employed in the employed total, which may affect comparisons to survey data from earlier years. Percentages shown here reflect these new edits and superseded previously reported percentages for years 1997 and 1999." This is the only table that includes a revised count of children with self-employed mothers for the 1997 and 1999 SIPPs.

<sup>166</sup>U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Winter 2002," *Current Population Reports*, P70-101, Detailed Tables (PPL 177) (Washington, DC: U.S. Census Bureau, November 9, 2005), PPL table 3A and table 3B, available from: <http://www.census.gov/population/www/socdemo/child/ppl-177.html>, accessed February 27, 2006.

<sup>167</sup>U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1997," *Current Population Reports*, P70-86, Detailed Tables (PPL 964) (Washington, DC: U.S. Census Bureau, October 31, 2000), PPL table 3, available from: <http://www.census.gov/population/www/socdemo/child/ppl-964.html>, accessed December 29, 2003; and U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1999," Detailed Tables (Washington, DC: U.S. Census Bureau, January 24, 2003), PPL table 3B, available from: <http://www.census.gov/population/www/socdemo/child/ppl-168.html>, accessed April 3, 2003.

time working mothers.<sup>168</sup> Similarly, the figures for 1999 were 8 percent and 4 percent,<sup>169</sup> and for 2002 were 9 percent and 6 percent.<sup>170</sup> As with many other SIPP counts, the figures were quite different in 1995, when only 2 percent of part-time working mothers and only 1 percent preschool children with full-time working mothers were reported as having no regular arrangement.<sup>171</sup> (See table 16.)

*Benchmark data.* We are unable to benchmark the SIPP's findings because no other survey we have examined has a separate category of children with no regular arrangement. The NSAF, like the SIPP, asks about care arrangements that are used "regularly," which is defined the same as in the SIPP ("at least once a week during the past month").<sup>172</sup> But unlike the SIPP, which puts such children in a separate category called "no regular arrangement," the NSAF puts them in the category of "parent/other care," which also includes care by either parent, by a sibling, and the child's self-care.<sup>173</sup> (Neither the NSAF report nor the public use data provide

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<sup>168</sup>U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1999," Detailed Tables, (Washington, DC: U.S. Census Bureau, January 24, 2003), PPL table 1A. "Child Care Arrangements for Preschoolers by Family Characteristics and Employment Status of Mother: Spring 1999," available from: <http://www.census.gov/population/www/socdemo/child/ppl-168.html>, accessed April 3, 2003.

<sup>169</sup>Authors' calculations from U.S. Census Bureau, 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.

<sup>170</sup>U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Winter 2002," *Current Population Reports*, P70-101, Detailed Tables (PPL 177) (Washington, DC: U.S. Census Bureau, November 9, 2005), PPL table 2B, available from: <http://www.census.gov/population/www/socdemo/child/ppl-177.html>, accessed February 27, 2006.

<sup>171</sup>U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Fall 1995," *Current Population Reports*, P70-70, Detailed Tables (PPL 138), (Washington, DC: U.S. Census Bureau, October 31, 2000), PPL table 1B. "Child Care Arrangements for Preschoolers by Family Characteristics: Fall 1995," available from: <http://www.census.gov/population/socdemo/child/ppl-138/tab01b.txt>, accessed December 29, 2003.

<sup>172</sup>Freya L. Sonenstein, Gary J. Gates, Stefanie Schmidt, and Natalya Bolshun, "Primary Child Care Arrangements of Employed Parents: Findings from the 1999 National Survey of America's Families," *Assessing the New Federalism*, Occasional Paper Number 59 (Washington, DC: The Urban Institute, 2002), p. 2, available from: [http://www.urban.org/UploadedPDF/310487\\_OP59.pdf](http://www.urban.org/UploadedPDF/310487_OP59.pdf), accessed February 3, 2005.

<sup>173</sup>Freya L. Sonenstein, Gary J. Gates, Stefanie Schmidt, and Natalya Bolshun, "Primary Child Care Arrangements of Employed Parents: Findings from the 1999 National Survey of America's Families," *Assessing the New Federalism*, Occasional Paper Number 59 (Washington, DC: The Urban Institute, 2002), p. 2, available from: [http://www.urban.org/UploadedPDF/310487\\_OP59.pdf](http://www.urban.org/UploadedPDF/310487_OP59.pdf), accessed February 3, 2005. The children for whom the NSAF finds no regular care arrangements "are included in the parent/other care category, but the extent of their prevalence is unknown."

separate counts for the subcategories within “parent/other care.”)<sup>174</sup> The NHES, on the other hand, drops from its sample children for whom it has no arrangement data.

*Assessment.* Without benchmark data, we cannot say that the SIPP actually miscounted the number of children with no regular arrangement. However, there is a larger more fundamental problem that makes the published counts incorrect—or at least deeply misleading.

This larger or more fundamental problem is the SIPP’s definition of “no regular arrangement.” The term conjures up an image of parents shifting child care arrangements back and forth without any stability. But, given the SIPP’s broad definition of the concept, all that this category can reliably measure is turnover in child care arrangements within a particular month. There are many causes for turnover, however, even between stable child care arrangements. This can include dissatisfaction with the existing arrangement, the end of the program or academic year, or a change in the mother’s work situation. For example, we do not know from the SIPP what percentage of these women went from full-time work to part-time, went from part-time work to full-time, lost their jobs, changed jobs, or became pregnant. Any of these scenarios could result in a changed arrangement.

Thus, this category encompasses various undifferentiated turnover issues, while giving the potentially false impression that child care is highly unstable. In effect, by treating children with “no regular arrangement” the same as those children who have no steady source of child care, the 1997, 1999, and 2002 SIPPs miss child care information for a large number of preschool-age children with working mothers because these children’s care arrangements are not considered “regular.”

In addition to the missed data in the survey itself, if not carefully considered, this misclassification of turnover as “no regular arrangement” could also mislead SIPP-based analyses of child care arrangements. Regardless of whether this is a sign of instability of arrangements, the fact is that these children have to be somewhere if their mothers are working.

The NSAF simply puts these children in “parent/other” care, with no further distinction between the two categories. We think it is more reasonable to believe that, although these arrangements are shifting, they remain consistent with overall patterns of child care usage. In our own Early Education and Child Care (ee/cc) Model, therefore, we allocate the children whom we believe to be in some form of child care, albeit one that does not fit the SIPP’s definition of regularity, according to the child care usage patterns of demographically similar children.

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<sup>174</sup>See the Urban Institute, “Public Use Data Files,” *Assessing the New Federalism* (Washington, DC: The Urban Institute, undated), available from: <http://anfdata.urban.org/nsaf/cpuf/accessdata.cfm>, accessed March 9, 2006. We searched the NSAF Public Use Data sets and were not able to extract information on the scale of no regular arrangement. The NSAF Public Use Data have been thoroughly edited and such cases are included in “no non-parental arrangement (parent care).”



*Explanations.* The SIPP's definition of regular arrangements seems to be the principal cause of these results. In effect, the SIPP records children who experienced natural turnover in arrangements as having no regular arrangement, because it asks whether children were in an arrangement that was used "at least once a week during the past month."<sup>175</sup> Those children whose arrangements changed during the month or did not follow a regular pattern would be defined as having no regular arrangement.<sup>176</sup>

This is a change from 1995 and before. The question prior to 1995 used the word "usually," whereas the 1995 question only asked if an arrangement was used "during a typical week" in the last month.<sup>177</sup> The 1997, 1999, and 2002 surveys added "on a regular basis" to the question and defined regular as "at least once a week during the past month."

Changes in the questionnaire's structure may also have affected the SIPP's accuracy between the 1995 and subsequent years. According to Martin O'Connell of the Census Bureau, beginning with the 1996 SIPP panel, which included the 1997 and 1999 SIPPs, the child care module questionnaire was changed to reduce respondent burden and to collect presumably more accurate data. As part of this simplification, respondents were asked only once (rather than twice) which child care arrangements they used. Prior to the 1996 SIPP panel, respondents had been asked twice: once for care arrangements during working hours and once for non-working hours. These separate questions, although potentially redundant, gave respondents an additional opportunity to remember child care arrangements, possibly reducing the number of missed arrangements in the 1995 SIPP.<sup>178</sup>

Proxy response, as well, may have been part of the reason for the high rate of no regular arrangement in the 1997, 1999, and 2002 SIPPs. As discussed below, 30 to 40 percent of "designated parents" in the SIPP's child care module are proxies.<sup>179</sup> Some proxies may not have known whether a child used any care arrangement "regularly" and hence left all choices blank. Nevertheless, confused proxy response would not explain why the SIPP's count of children with no regular arrangement grew so significantly between 1995 and 1997 and remained so high through 2002. Rates of proxy response decreased during this time period, with the 1995 SIPP reporting the highest levels of proxy response. Yet, its rate of children with no regular

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<sup>175</sup>U.S. Census Bureau, "Child Care Topical Module," available from: [http://www.sipp.census.gov/sipp/top\\_mod/1996/quests/wave4/childcar.htm](http://www.sipp.census.gov/sipp/top_mod/1996/quests/wave4/childcar.htm), accessed December 19, 2000.

<sup>176</sup>Kristin Smith, U.S. Census Bureau, email message to Anne F. Shi, April 20, 2001.

<sup>177</sup>U.S. Census Bureau, Survey of Income and Program Participation, *1993 Panel Wave IX Topical Module Questionnaire* (U.S. Census Bureau), available from: <http://www.sipp.census.gov/sipp/93w9tm.pdf>, p. 62, accessed November 21, 2001.

<sup>178</sup>Martin O'Connell, U.S. Census Bureau, email message to authors, February 1, 2005.

<sup>179</sup>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, with data downloaded from Ferret, available from: <http://ferret.bls.census.gov/cgi-bin/ferret>, accessed March 2001.

arrangement was the lowest of the four years. Thus, proxy response is unlikely to be the primary source of the growing number of children counted as having no regular arrangement.

Some of the problems in the 1997 and 1999 SIPPs may result from the inclusion of data from June, a transition month. The 1997 and 1999 SIPPs interviewed four equally divided sample subgroups (rotation groups) in April, May, June, and July, each asking about child care arrangements “in the past month.” That means that the July subgroup, one quarter of each year’s sample, answered questions about child care and school attendance information for the month of June.

Unfortunately, the child care experiences of many children during June are not typical of their experiences during the other survey months. In June, many families change child care arrangements, so that they have used two different arrangements in the month. This would have a disproportionate effect on children in prekindergarten, nursery, and Head Start. These child care arrangements are likely to end during June, causing parents to shift in mid-month the types of child care arrangements they used for that month. Because a “regular arrangement” is one arrangement that is used “at least once a week in the past month,”<sup>180</sup> these families would be classified as having “no regular arrangement.” In the 1997 SIPP, the proportion of preschool children (birth to age four) of working mothers with no regular arrangement in June (9 percent) was at least 50 percent higher than in March (5 percent), April (6 percent), and May (6 percent).<sup>181</sup> (In comparison, the 1990 SIPP to 1995 SIPPs, which seem to have more accurate child care data, were conducted in the fall, collecting child care data between September and December.)

The 2002 SIPP, which does not include June as a survey month, reports the highest incidence of no regular arrangement for preschool-age children with working mothers, a staggering 48 percent. This sharp rise, however, is primarily due to an error in whom the SIPP reports count as an “employed mother.” As discussed above, prior to 2002, the SIPP reports accidentally excluded self-employed mothers from the total count of employed mothers.

Their subsequent inclusion in the 2002 SIPP child care report greatly increased the number of children with employed mothers who have no regular arrangement. This is because self-employed mothers are far less likely to use regular child care arrangements than either the full-time or part-time working mothers. A possible explanation for this effect is that self-employed mothers are more likely to have irregular work patterns, which may result in more frequent changes in child care arrangements. Table 16 shows that the majority of self-employed mothers (56 percent) do not use regular arrangements to care for their preschoolers. The table also shows that for both full-time and part-time working mothers, the incidence of no regular

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<sup>180</sup>U.S. Census Bureau, “Child Care Topical Module,” available from: [http://www.sipp.census.gov/sipp/top\\_mod/1996/quests/wave4/childcar.htm](http://www.sipp.census.gov/sipp/top_mod/1996/quests/wave4/childcar.htm), accessed December 19, 2000.

<sup>181</sup>Authors’ calculation based on U.S. Census Bureau, 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.

arrangement cases in the 2002 SIPP is similar to or only slightly higher than that in the 1997 and 1999 SIPPs. This would suggest that, independent of the data on self-employed mothers, the absence of a transition month in the 2002 SIPP did little, if anything, to improve the data.

As for school-age children, the extremely large figures for no regular arrangements in 1997, 1999, and 2002 are wrong for another reason. School was not considered a child care arrangement in the 1997, 1999, or 2002 SIPPs (although it was in earlier years). Hence, children who are in school while their mothers work part-time would be considered to be without a regular arrangement. This effect may be more pronounced for children of self-employed mothers, who might have the flexibility to work primarily while their child is in school.

**Table 16.**  
**Children Ages 0 to 4 with Employed Mothers by Regular Arrangement Status and Mother's Work Schedule:**  
**SIPP (1995, 1997, 1999, and 2002)**

| Year & Mother's Work Schedule | Total Number of Children | Have Regular Arrangement |         | No Regular Arrangement |         |
|-------------------------------|--------------------------|--------------------------|---------|------------------------|---------|
|                               |                          | Number                   | Percent | Number                 | Percent |
| 1995                          |                          |                          |         |                        |         |
| Full-time                     |                          |                          |         |                        |         |
| Part-time                     | 6,578,000                | 6,483,000                | 98.6%   | 95,000                 | 1.4%    |
| All                           | 3,732,000                | 3,646,000                | 97.7%   | 86,000                 | 2.3%    |
|                               | 10,309,000               | 10,129,000               | 98.3%   | 180,000                | 1.7%    |
| 1997                          |                          |                          |         |                        |         |
| Full-time                     |                          |                          |         |                        |         |
| Part-time                     | 6,470,000                | 6,107,000                | 94.4%   | 363,000                | 5.6%    |
| All                           | 3,646,000                | 3,337,000                | 91.5%   | 309,000                | 8.5%    |
|                               | 10,116,000               | 9,444,000                | 93.4%   | 672,000                | 6.6%    |
| 1999                          |                          |                          |         |                        |         |
| Full-time                     |                          |                          |         |                        |         |
| Part-time                     | 7,014,000                | 6,761,000                | 96.4%   | 253,000                | 3.6%    |
| All                           | 3,573,000                | 3,260,000                | 91.7%   | 313,000                | 8.3%    |
|                               | 10,587,000               | 10,021,000               | 94.7%   | 566,000                | 5.3%    |
| 2002                          |                          |                          |         |                        |         |
| Full-time                     |                          |                          |         |                        |         |
| Part-time                     | 5,963,000                | 5,635,000                | 94.5%   | 328,000                | 5.5%    |
| Self-employed                 | 3,042,000                | 2,766,000                | 90.9%   | 276,000                | 9.1%    |
| All                           | 818,000                  | 359,000                  | 43.9%   | 459,000                | 56.1%   |
|                               | 9,823,000                | 8,760,000                | 89.2%   | 1,063,000              | 10.8%   |

*Sources:* For 1995, U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Fall 1995," *Current Population Reports*, P70-70, Detailed Tables (PPL 138) (Washington, DC: U.S. Census Bureau, October 31, 2000), PPL table 1B, "Child Care Arrangements for Preschoolers by Family Characteristics: Fall 1995," available from: <http://www.census.gov/population/socdemo/child/ppl-138/tab01b.txt>, accessed December 29, 2003; for 1997, U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1997," *Current Population Reports*, P70-86, Detailed Tables (Washington, DC: U.S. Census Bureau, August 1, 2002), PPL tables 1A and 1B, "Child Care Arrangements for Preschoolers by Family Characteristics and Employment Status of Mother: Spring 1997," p. 15, available from: <http://www.census.gov/population/www/socdemo/child/ppl-964.html>, accessed April 3, 2003; for 1999, U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1999," Detailed Tables (Washington, DC: U.S. Census Bureau, January 24, 2003), PPL table 1A, "Child Care Arrangements for Preschoolers by Family Characteristics and Employment Status of Mother: Spring 1999," available from: <http://www.census.gov/population/www/socdemo/child/ppl-168.html>, accessed April 3, 2003; and for 2002, U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Winter 2002," *Current Population Reports*, P70-101, Detailed Tables (Washington, DC: U.S. Census Bureau, October 2005), PPL tables 1 A and 1B, available from: <http://www.census.gov/population/www/socdemo/child/ppl-177.html>, accessed March 8, 2006.

**Subsidies.** *Compared to benchmark data, the 1997 SIPP missed at least 41 percent of the children who received child care subsidies and the 1999 SIPP missed at least 47 percent of the children who received child care subsidies (above and beyond the uncounted children in Head Start). The 2002 SIPP missed at least 42 percent of such children. (The Census Bureau did not ask about subsidies in 1995.)*

*SIPP data.* Information on subsidies was first collected in 1997, with the SIPP reporting that about 812,000 children under age fifteen received a subsidy.<sup>182</sup> That number rose to about 1.09 million children in 1999,<sup>183</sup> and to about 1.35 million children in 2002.<sup>184</sup> According to the 1997 SIPP, these subsidies went to about 4 percent of all children under age fifteen regularly in non-parental care (that is, center-based care, family care, relative care, and other non-relative care, but excluding care by either parents, sibling(s), and child's self-care).<sup>185</sup> In 1999, about 5 percent of such children received subsidies,<sup>186</sup> and in 2002, about 7 percent received subsidies.<sup>187</sup>

Using the Urban Institute's Transfer Income Model (TRIM) we are able to estimate the percentage of CCDF-eligible children reported by the SIPP as receiving a child care subsidy: about 5 percent of CCDF-eligible children received subsidies in 1997, about 7 percent in 1999,

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<sup>182</sup>Kristin Smith, "Who's Minding the Kids? Child Care Arrangements: Spring 1997," *Current Population Reports*, P70-86 (Washington, DC: U.S. Census Bureau, July 2002), table 9. "Receipt of Help to Pay for Child Care From Selected Sources for Children Under 15 Years: Spring 1997," p. 18, available from: <http://www.census.gov/prod/2002pubs/p70-86.pdf>, accessed April 3, 2003. This number is from the SIPP question asking whether the government helped pay for child care.

<sup>183</sup>Authors' calculation based on U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1999," Detailed Tables (PPL-168) (Washington, DC: U.S. Census Bureau, January 24, 2003), PPL table 1B and table 3B, available from: <http://www.census.gov/population/www/socdemo/child/ppl-168.html>, accessed December 29, 2003.

<sup>184</sup>Author's calculation based on U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Winter 2002," Detailed Tables (Washington, DC: U.S. Census Bureau, October 2005), PPL table 1B, available from: <http://www.census.gov/population/socdemo/child/ppl-177/tab01B.xls>, accessed March 14, 2006.

<sup>185</sup>Authors' calculation based on U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1997," *Current Population Reports*, P70-86, Detailed Tables (PPL 964) (Washington, DC: U.S. Census Bureau, October 31, 2000), PPL table 1 and table 3, available from: <http://www.census.gov/population/www/socdemo/child/ppl-964.html>, accessed December 29, 2003.

<sup>186</sup>Authors' calculation based on U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1999," Detailed Tables (PPL-168) (Washington, DC: U.S. Census Bureau, January 24, 2003), PPL table 1B and table 3B, available from: <http://www.census.gov/population/www/socdemo/child/ppl-168.html>, accessed December 29, 2003.

<sup>187</sup>Authors' calculation based on U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1999," Detailed Tables (PPL-168) (Washington, DC: U.S. Census Bureau, January 24, 2003), PPL table 1B and table 3B, available from: <http://www.census.gov/population/www/socdemo/child/ppl-168.html>, accessed December 29, 2003.

and about 9 percent in 2002.<sup>188</sup> Our ee/cc Model allows us to estimate the arrangement patterns of these CCDF-eligible children. From these estimates, we then determine the percentage of CCDF-eligible children *in nonparental care* reported by the SIPP as receiving a child care subsidy. Among CCDF-eligible children in nonparental care as a primary arrangement, the SIPP reports about 8 percent receiving subsidies in 1997, about 10 percent in 1999, and about 13 percent in 2002.<sup>189</sup>

Given the SIPP's purpose of measuring program participation, it has surprisingly little data on child care subsidies. Although the SIPP collects information on whether the care is subsidized, its question about the source of the subsidy is vague and it cannot distinguish between parental payments for the full cost of child care and copayments.

*Benchmark data.* To assess the accuracy of the SIPP's data on child care subsidies, we compare them to the relevant administrative data. The major source of federal child care subsidies is the Child Care Development Fund (CCDF). In 1997, the average monthly number of children receiving CCDF subsidies was 1,247,856,<sup>190</sup> suggesting a SIPP undercount of about 435,856 children (about 35 percent). In 1999, the average monthly number of children receiving CCDF subsidies was 1.65 million,<sup>191</sup> itself a SIPP undercount of about 565,000 children (about 34 percent). In 2002, the average monthly number of children receiving CCDF subsidies was 1.74 million,<sup>192</sup> suggesting a SIPP undercount of about 390,000 children (about 22 percent).

Other federal programs, however, also provide child care subsidies.<sup>193</sup> In 1997, child care subsidies under the Temporary Assistance for Needy Families (TANF) program and the Social

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<sup>188</sup>The Urban Institute, the Transfer Income Model (TRIM) Simulated CCDF-Eligible Children, 2004.

<sup>189</sup>Authors' calculation based on University of Maryland, Welfare Reform Academy, "Child Care Estimator," 2005.

<sup>190</sup>U.S. Department of Health and Human Services, Administration for Children and Families, "ACF News: HHS Fact Sheet: State Spending under the Child Care Block Grant" (Washington, DC: U.S. Department of Health and Human Services, November 12, 1998), available from: <http://www.acf.dhhs.gov/news/press/1998/cc97fund.htm>, accessed January 20, 2004.

<sup>191</sup>U.S. Department of Health and Human Services, Administration for Children and Families, Child Care Bureau, "Revised FFY 1999 CCDF Data Tables and Charts" (Washington, DC: U.S. Department of Health and Human Services, December 12, 2003), available from: <http://www.acf.hhs.gov/programs/ccb/research/99acf800R/chldser1.htm>, accessed December 13, 2005.

<sup>192</sup>U.S. Department of Health and Human Services, Administration for Children and Families, Child Care Bureau, "FFY 2002 CCDF Data Tables and Charts" (Washington, DC: U.S. Department of Health and Human Services, February 24, 2005), <http://www.acf.hhs.gov/programs/ccb/research/02acf800/table1.htm> (accessed December 13, 2005).

<sup>193</sup>See Douglas J. Besharov and Caeli Higney, "Child Care Spending 1997–2003: Federal and State Spending Almost Doubled" (College Park, MD: University of Maryland, Welfare Reform Academy, publication pending).

Services Block Grant (SSBG) program amounted to about \$434 million.<sup>194</sup> If the per-child cost of child care under these programs was the same as under the CCDF, then more than 138,445 additional children would have received a child care subsidy. That would mean a combined undercount of about 41 percent.

In 1999, child care subsidies under TANF and SSBG amounted to about \$1.58 billion.<sup>195</sup> If the per-child cost of child care under these programs was the same as under the CCDF, then more than 385,661 additional children would have received a child care subsidy. That would mean a combined undercount of about 47 percent.

In 2002, child care subsidies under TANF and SSBG amounted to about \$2.81 billion.<sup>196</sup> If the per-child cost of child care under these programs was the same as under the CCDF, then more than 571,786 additional children would have received a child care subsidy. That would mean a combined undercount of about 42 percent.

There are many other state and local sources of subsidies for which we have no data. Hence, the estimated 41 percent, 47 percent, and 42 percent of CCDF, TANF, and SSBG subsidy recipients missing from the SIPP are undoubtedly only the minimum undercount.

*Comparability.* The 1997 and 1999 SIPP data are generally comparable to the relevant administrative data. First, in the SIPP questionnaire, the sources of government subsidies (“Federal, state, or local government agency, or welfare office”)<sup>197</sup> match the sources in the administrative records for CCDF, TANF, and SSBG. Second, both the SIPP data and

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<sup>194</sup>For TANF, Melinda Gish, *Child Care: Funding and Spending under Federal Block Grants* (Washington, DC: Congressional Research Service, March 19, 2002); and for SSBG, The Title XX Coalition, “The Social Services Block Grant: FY 1997 Expenditure Report,” available from: [http://www.thearc.org/ga/ssbg\\_report.html](http://www.thearc.org/ga/ssbg_report.html), accessed December 18, 2003.

<sup>195</sup>For TANF, Melinda Gish, *Child Care: Funding and Spending under Federal Block Grants* (Washington, DC: Congressional Research Service, March 19, 2002); and for SSBG, The Title XX Coalition, “The Social Services Block Grant: FY 1997 Expenditure Report,” available from: [http://www.thearc.org/ga/ssbg\\_report.html](http://www.thearc.org/ga/ssbg_report.html), accessed December 18, 2003.

<sup>196</sup>Authors’ calculation based on U.S. Department of Health and Human Services, Administration for Children and Families, “Annual Report on Expenditure and Recipients 2002,” *Social Service Block Grant Reports* (Washington, DC: U.S. Department of Health and Human Services, undated), available from: <http://www.acf.hhs.gov/programs/ocs/ssbg/docs/reports.htm>, accessed January 25, 2005; and Congressional Research Service, unpublished tables on TANF expenditures.

<sup>197</sup>U.S. Census Bureau, “Child Care Topical Module,” available from: [http://www.sipp.census.gov/sipp/top\\_mod/1996/quests/wave4/childcar.htm](http://www.sipp.census.gov/sipp/top_mod/1996/quests/wave4/childcar.htm), accessed June 26, 2005.

administrative data on child care subsidies are monthly rather than yearly figures; that is, they are not cumulative.<sup>198</sup>

*Assessment.* We conclude that the administrative data on the number of children receiving child care subsidies are more accurate than the SIPP data. First, the administrative data are the *actual* numbers of children receiving child care subsidies (through CCDF, TANF, and SSBG) reported to the Department of Health and Human Services (HHS) by the fifty states and the District of Columbia, whereas the SIPP figures are derived from surveying a sample of people. As discussed below, the SIPP survey sample is severely biased and may have missed a large number of poor families that receive the child care subsidies.

Second, the administrative counts of children receiving child care subsidies show a steady trend of growth from year to year, which is consistent with the growth of public child care expenditures in general.

Third, a recent Government Accountability Office (GAO) report notes that the CCDF data for the recent four years (January 2001 to March 2005) are “reliable.”<sup>199</sup> From February through May 2005, the GAO reviewed the HHS data on child care expenditures and the number of children receiving CCDF subsidies “in accordance with generally accepted government auditing standards.”<sup>200</sup> After the audit, the GAO reported to the U.S. Senate that the administrative data “were sufficiently reliable for the purpose of this report [to the U.S. Senate].”<sup>201</sup> Although there is no similar GAO assessment of the accuracy of the 1997 administrative data on the number of children receiving child care subsidies through the CCDF, TANF, and SSBG, we believe the data are also reliable because they were collected in the same manner and abided by the same standards.

*Explanations.* There are several likely explanations for this undercount. First, the SIPP’s questions on child care subsidies (for 1997, 1999, and 2002) were ambiguous and may have led

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<sup>198</sup>The SIPP figure is the number of children who received government subsidies for their regular child care arrangements in a month between March and June, whereas the administrative records contain information on the average monthly number of children receiving subsidies under CCDF, TANF, and SSBG. (There might be differences in these data sources due to seasonal effects, but the differences should be small.)

<sup>199</sup>U.S. Government Accountability Office, *Child Care: Additional Information Is Needed on Working Families Receiving Subsidies*, GAO-05-667 (Washington, DC: U.S. Government Accountability Office, June 2005), p. 8, available from: <http://www.gao.gov/new.items/d05667.pdf>, accessed September 21, 2005.

<sup>200</sup>U.S. Government Accountability Office, *Child Care: Additional Information Is Needed on Working Families Receiving Subsidies*, GAO-05-667 (Washington, DC: U.S. Government Accountability Office, June 2005), p. 8, available from: <http://www.gao.gov/new.items/d05667.pdf>, accessed September 21, 2005.

<sup>201</sup>U.S. Government Accountability Office, *Child Care: Additional Information Is Needed on Working Families Receiving Subsidies*, GAO-05-667 (Washington, DC: U.S. Government Accountability Office, June 2005), p. 8, available from: <http://www.gao.gov/new.items/d05667.pdf>, accessed September 21, 2005.



to erroneous responses. The SIPP estimate of the number of children who received publicly or privately subsidized child care was derived from two consecutive questions below:

Did any one [sic] help you pay for all or part of the cost of any child care arrangements for (child's name)? By this I mean a government agency, an employer, a relative, or a friend.

- (1) Yes
- (2) No
- (3) Did not use any arrangements

Who or what agency helped pay for this arrangement?

- (1) Government (Federal, state, or local government agency, or welfare office)
- (2) Child's other parent
- (3) Employer
- (4) Other (specify)<sup>202</sup>

Some parents who used publicly subsidized child care without making a copayment may have answered "no" to the first question because they did not actually "pay" for the child care and hence were missing from the SIPP estimate of those who received help from the government or other sources. According to the Children's Defense Fund, "in 16 states, a family of three at 50 percent of poverty [or below] pays no fee (Arkansas, California, Delaware, Hawaii, Indiana, Iowa, Kansas, Kentucky, Louisiana, Massachusetts, Minnesota, Nebraska, Oklahoma, Rhode Island, South Dakota, and Vermont)."<sup>203</sup>

Second, some parents may have been unaware that they received a subsidy, because their copayments were so large that they thought they were paying for the child care. According to Craig Turner, director of program management of the Head Start Bureau at the U.S. Department of Health and Human Services, in FY 2001 the average of the required parental copayment was about 3.4 percent of family income.<sup>204</sup> For a family of three (a mother and two children at the

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<sup>202</sup>U.S. Census Bureau, "Child Care Topical Module," available from: [http://www.sipp.census.gov/sipp/top\\_mod/1996/quests/wave4/childcar.htm](http://www.sipp.census.gov/sipp/top_mod/1996/quests/wave4/childcar.htm), accessed December 19, 2000; and U.S. Census Bureau, "SIPP Design and Survey Content, 2001 Panel Topical Module Wave 4 Questionnaires: Child Care Topical Module," [http://www.sipp.census.gov/sipp/top\\_mod/2001/quests/wave4/childcare.html](http://www.sipp.census.gov/sipp/top_mod/2001/quests/wave4/childcare.html) (accessed March 24, 2006).

<sup>203</sup>Children's Defense Fund, *A Fragile Foundation: State Child Care Assistance Policies* (Washington, DC: Children's Defense Fund, November 2001), p. 81.

<sup>204</sup>Craig Turner, director of program management, Head Start Bureau, U.S. Department of Health and Human Services, e-mail message to Douglas Besharov, June 22, 2005. "In FFY 2001, the average co-payment as a percentage of income for families with incomes below the poverty line was 3.4%. In FFY 2002, it was 3.6% and in FFY 2003 3.8%." (These average payments include families with zero copayment.)

poverty line (\$14,128), the copayment would be about \$480 per year. We do not have data on the exact level of parental copayment for 1997, but we are sure that many families made large copayment as required. Some of those families may not have acknowledged the “help” from the government.

Third, as discussed below, between 30 and 40 percent of the respondents in the SIPP were proxies who were interviewed during the survey on behalf of the parents. They may not have known about either the subsidy or the copayment.

Fourth, the SIPP’s biased sample probably misses substantial portions of the groups most likely to receive child care subsidies—the result of disproportionately high undercoverage and nonresponse rates for women of child-bearing age (eighteen to thirty-nine years old), minorities, and low-income persons. As discussed below, Census Bureau adjustments have not fully remedied these problems.

**Paying parents.** *Compared to benchmark data, the SIPP consistently undercounted the proportion of families who pay for child care. The 1997 SIPP undercounted the proportion of families with working mothers that paid for child care by about 10 percent. The 1999 SIPP undercount was about 12 percent. Among families with working mothers and incomes at or above 200 percent of poverty, the SIPP’s figure for both 1997 and 1999 was 9 percent lower than the benchmark data. The SIPP’s undercount was significantly worse among families with working mothers and incomes below 200 percent of poverty, with an undercount of about 17 percent in 1997 and 23 percent in 1999. (We do not have benchmark data for 1995 or 2002.)*

*SIPP data.* According to the SIPP, about 43 percent of all families with working mothers paid for child care in 1997; about 42 percent paid in 1999.<sup>205</sup> At or above 200 percent of poverty, the SIPP reports that about 48 percent paid for child care in 1997 and 47 percent in 1999. Below 200 percent of poverty, the SIPP reports that about 33 percent paid for child care in 1997<sup>206</sup> and about in 32 percent in 1999,<sup>207</sup> and below poverty, the SIPP reports that about 30 percent paid for

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<sup>205</sup>Authors’ calculation from Kristin Smith, “Who’s Minding the Kids? Child Care Arrangements: Spring 1997,” *Current Population Reports*, P70-86 (Washington, DC: U.S. Census Bureau, July 2002), table 8, “Weekly Child Care Payments by Families with Mothers: Spring 1997,” p. 17, available from: <http://www.census.gov/prod/2002pubs/p70-86.pdf>, accessed April 3, 2003.

<sup>206</sup>Authors’ calculation from Kristin Smith, “Who’s Minding the Kids? Child Care Arrangements: Spring 1997,” *Current Population Reports*, P70-86 (Washington, DC: U.S. Census Bureau, July 2002), table 8, “Weekly Child Care Payments by Families with Mothers: Spring 1997,” p. 17, available from: <http://www.census.gov/prod/2002pubs/p70-86.pdf>, accessed April 3, 2003.

<sup>207</sup>Authors’ calculation from U.S. Census Bureau, “Who’s Minding the Kids? Child Care Arrangements: Spring 1999,” Detailed Tables (Washington, DC: U.S. Census Bureau, January 24, 2003), table 6, “Average Weekly Child Care Expenditures by Employed Mothers of Children Under 14, Children Under 5 and Children 5 to 14: Spring 1999,” available from: <http://www.census.gov/population/socdemo/child/ppl-168/tab06.pdf>, accessed October 29, 2003.

child care in both 1997 and 1999. The SIPP does not distinguish between parents who paid the entire cost of child care and those who merely made a copayment.

*Benchmark data.* To assess the accuracy of the SIPP's data on the percentage of families who pay for child care, we compare the SIPP data to data from the NSAF. Under each of the three income breakdowns for which we examine SIPP payment data, the NSAF finds a greater percentage of families who pay for child care. The NSAF reports that about 48 percent of "working families" paid for child care in 1997<sup>208</sup> and 1999.<sup>209</sup> At or above 200 percent of poverty, the NSAF reports that about 53 percent of such families paid for child care in 1997<sup>210</sup> and 51 percent in 1999.<sup>211</sup> Below 200 percent of poverty, the NSAF reports that about 40 percent paid for child care in 1997<sup>212</sup> and about 42 percent in 1999.<sup>213</sup> (The NSAF does not report data for families under the poverty line.)

Below, we use the Community Survey (CS) of the National Study of Child Care for Low-Income Families,<sup>214</sup> to reinforce our benchmark data on parental expenditures. We do not use the CS data on the percentage of families who pay for child care in the SIPP and NSAF, however, because of differences between the CS and the other surveys. The CS collected data from only twenty-five communities in seventeen states and surveyed only those parents working a

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<sup>208</sup>Authors' calculation from Linda Giannarelli and James Barsimantov, *Child Care Expenses of America's Families* (Washington, DC: the Urban Institute, December 2000), p. 17, available from: [http://www.urban.org/UploadedPDF/310028\\_occa40.pdf](http://www.urban.org/UploadedPDF/310028_occa40.pdf), accessed October 29, 2003.

<sup>209</sup>Authors' calculation from Linda Giannarelli and James Barsimantov, *Child Care Expenses of America's Families* (Washington, DC: the Urban Institute, December 2000), figure 1, "Child Care Expenses of Working Families with Children Age 13," p. 3, available from: [http://www.urban.org/UploadedPDF/310028\\_occa40.pdf](http://www.urban.org/UploadedPDF/310028_occa40.pdf), accessed October 29, 2003.

<sup>210</sup>Authors' calculation from Linda Giannarelli and James Barsimantov, *Child Care Expenses of America's Families* (Washington, DC: the Urban Institute, December 2000), p. 17, available from: [http://www.urban.org/UploadedPDF/310028\\_occa40.pdf](http://www.urban.org/UploadedPDF/310028_occa40.pdf), accessed October 29, 2003.

<sup>211</sup>Authors' calculation from Linda Giannarelli, Sarah Adelman, and Stefanie Schmidt, *Getting Help with Child Care Expenses*, (Washington, DC: the Urban Institute, February 2003), p. 17, available from: [http://www.urban.org/UploadedPDF/310615\\_OP62.pdf](http://www.urban.org/UploadedPDF/310615_OP62.pdf), accessed October 29, 2003.

<sup>212</sup>Authors' calculation from Linda Giannarelli and James Barsimantov, *Child Care Expenses of America's Families* (Washington, DC: the Urban Institute, December 2000), p. 17, available from: [http://www.urban.org/UploadedPDF/310028\\_occa40.pdf](http://www.urban.org/UploadedPDF/310028_occa40.pdf), accessed October 29, 2003.

<sup>213</sup>Authors' calculation from Linda Giannarelli, Sarah Adelman, and Stefanie Schmidt, *Getting Help with Child Care Expenses*, (Washington, DC: the Urban Institute, February 2003), p. 17, available from: [http://www.urban.org/UploadedPDF/310615\\_OP62.pdf](http://www.urban.org/UploadedPDF/310615_OP62.pdf), accessed October 29, 2003.

<sup>214</sup>Nancy Burstein, Jean I. Layzer, and Kevin Cahill, *National Survey of Child Care for Low-Income Families: Patterns of Child Care Use Among Low-Income Families*, Final Draft (Washington, DC: Abt Associates, Inc., August 1, 2001), pp. i-ii.

minimum of twenty hours per week. As shown in our Early Education and Child Care Model,<sup>215</sup> parents working more hours are more likely to use center-based care, and those arrangements, in turn, are the most likely to require parental payment or copayment.

Compared to either survey, the CS finds a substantially higher percentage of families who pay for care. For example, for children in working-mother families below 200 percent of poverty, the 1999 SIPP estimate of the percent of families that paid for child care was 51 percent lower than the CS estimate (32 percent in SIPP<sup>216</sup> versus 65 percent in CS<sup>217</sup>) and the NSAF estimate was 35 percent lower (42 percent in the NSAF<sup>218</sup> versus 65 percent in the CS). This relationship is to be expected, given the minimum required hours of work in the CS. Because this difference is so large, however, the CS cannot be used to gauge the accuracy of the SIPP or the NSAF data on the number of families paying for child care.

*Comparability.* There are various minor differences between the surveys. First, the SIPP collects data for children under age fifteen, whereas the NSAF is limited to children under age thirteen. Second, the SIPP estimates on the percent of paying parents and on child care expenditures are for families with “working mothers”; that is, mothers who worked for an employer for at least one hour “during a typical week.”<sup>219</sup> The NSAF estimates are for “working families,” defined as “ones where the adult who is most knowledgeable about the focal children is working,” and reports using child care while he or she works. In general, that most knowledgeable adult is the mother of the children and either has no spouse or partner or has a spouse or partner who also is working.”<sup>220</sup> We do not believe these differences present any significant obstacle to comparing these two surveys.

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<sup>215</sup>University of Maryland, Welfare Reform Academy, “Early Education/Child Care Model,” 2005.

<sup>216</sup>Authors’ calculation from U.S. Census Bureau, “Who’s Minding the Kids? Child Care Arrangements: Spring 1999,” Detailed Tables (Washington, DC: U.S. Census Bureau, January 24, 2003), table 6, “Average Weekly Child Care Expenditures by Employed Mothers of Children Under 14, Children Under 5 and Children 5 to 14: Spring 1999,” available from: <http://www.census.gov/population/socdemo/child/ppl-168/tab06.pdf>, accessed October 29, 2003.

<sup>217</sup>Authors’ calculation from Nancy Burstein, Jean I. Layzer, and Kevin Cahill, *National Survey of Child Care for Low-Income Families: Patterns of Child Care Use Among Low-Income Families*, Final Draft (Washington, DC: Abt Associates, Inc., August 1, 2001), p. 4-8.

<sup>218</sup>Linda Giannarelli, Sarah Adelman, and Stefanie Schmidt, “Getting Help with Child Care Expenses,” *Assessing the New Federalism*, Occasional Paper Number 62 (Washington, DC: The Urban Institute, 2003), table 3, p. 15, available from: [http://www.urban.org/UploadedPDF/310615\\_OP62.pdf](http://www.urban.org/UploadedPDF/310615_OP62.pdf), accessed February 3, 2005.

<sup>219</sup>U.S. Census Bureau, Survey of Income and Program Participation, 1996 Panel Wave 4 Topical Module Data Dictionary, available from: <ftp://www.sipp.census.gov/pub/sipp/tm96pw4d.asc>, accessed January 21, 2005.

<sup>220</sup>Linda Giannarelli and James Barsimantov, *Child Care Expenses of America’s Families* (Washington, DC: the Urban Institute, December 2000), note 7, p. 19, available from: [http://www.urban.org/UploadedPDF/310028\\_occ40.pdf](http://www.urban.org/UploadedPDF/310028_occ40.pdf), accessed October 29, 2003.

*Assessment.* We conclude that the NSAF expenditure data for families with incomes below 200 percent of poverty are more reliable than the SIPP's counts. First, the NSAF's spending data are more internally stable between 1997 and 1999, especially among low-income families, than those in the SIPP. Second, in other areas examined in this report, we have found the NSAF to be largely free of the miscounts that plague the SIPP data, especially for estimates pertaining to low-income families.

*Miscount.* Compared to the 1997 and 1999 NSAFs, both the 1997 and 1999 SIPPs reported a lower proportion of families paying for child care. The SIPP reports that in 1997, 43 percent of families with employed mothers paid for child care, about 12 percent lower than in the NSAF (48 percent of "working families"). For 1999, the undercount was about the same: 42 percent in the SIPP versus 48 percent in the NSAF.

The SIPP reports that in 1997, 48 percent of families with employed mothers at or above 200 percent of poverty paid for child care, about 9 percent lower than in the NSAF (53 percent); and for 1999, the SIPP reports that 47 percent of such families paid for child care, also about 9 percent lower than that in the NSAF (51 percent).

Among families with lower incomes, the undercounts are more severe. The SIPP reports that in 1997, 33 percent of families with employed mothers below 200 percent of poverty paid for child care, about 17 percent lower than that in the NSAF (40 percent "working families" below 200 percent of poverty); and for 1999, the SIPP reports that 32 percent of such families paid for child care, about 23 percent lower than in the NSAF (42 percent).

*Explanations.* As in many other sections of this report, issues relating to the SIPP's large proportion of proxy respondents, its small sample sizes, and its inclusion of a transition month in the 1997 and 1999 SIPPs all, to a greater or lesser extent, may play a role in these individual miscounts.

The most likely explanation for this undercount, however, is the SIPP's biased sample. Given that, in general, poor families are more likely to use free child care arrangements than are more well-to-do families, one might expect the SIPP's biased sample to *overstate* the percentage of families paying for care. Although the SIPP's sample tends to exclude the poorest households, it does not do so evenly across other demographic lines. For example, the SIPP disproportionately misses black women, especially those between the ages of eighteen and thirty-nine. The result is a somewhat unpredictably unrepresentative sample. Given this unpredictability and the general reliability of the benchmark data, it is not altogether inconsistent that the SIPP's skewed sample would undercount the percentage of families who pay for care.

**Parental expenditures.** *The SIPP also consistently overstated the weekly child care expenditures of families with working mothers who pay for child care. Compared to the benchmark data, the 1997 SIPP overstated the child care expenditures of families that paid for child care by about 12 percent. The 1999 SIPP overstated this amount by 13 percent. Among families at or above 200 percent of poverty, the SIPP overstated child care expenditures by 8*

*percent for 1997 and 6 percent for 1999. Among families below 200 percent of poverty, the SIPP's overstatement of child care expenditures was significantly worse, at about 21 percent for 1997 and 31 percent for 1999. (We do not have benchmark data for 1995 or 2002, and, thus, we make no comparison for those two years.)*

*In addition, although the SIPP's estimates of expenditures on child care among all families, regardless of income, are relatively consistent between years, its estimates of expenditures among poor families are highly volatile and likely to be inaccurate, varying between 1991 and 2002 by as much as 41 percent from one survey to the next.*

*SIPP data.* The 1997 SIPP reports that, overall, families with working mothers paid a weekly average of \$83.20 on child care. The 1999 SIPP weekly average was \$85.30, an increase of about 3 percent, and the 2002 weekly average was \$95.20, an increase of about 12 percent. At or above 200 percent of poverty, the SIPP reports weekly expenditures of \$89.51 in 1997, \$88.55 in 1999, a decrease of 1 percent, and \$104.30 in 2002, an increase of 18 percent. Below 200 percent of poverty, the SIPP reports weekly expenditures of \$68.83 in 1997; \$76.66 in 1999, an increase of 11 percent; and \$66.93 in 2002, a 13 percent decrease. Below poverty, the SIPP reports weekly expenditures of about \$58.40 in 1997, \$82.10 in 1999, a striking increase of 41 percent, and \$67.20 in 2002, a decrease of 18 percent. The SIPP cannot distinguish between parents who paid the entire cost of child care and those who merely made a copayment.

The SIPP data on child care expenditures among families below poverty with working mothers show a particular cross-year volatility not present with other income groups. According to the SIPP, the average weekly child care cost for all families with employed mothers (regardless of family income) who paid for child care was \$67.40 in 1984 to 1985, \$72.70 in 1986, \$76.80 in 1987, \$82.10 in 1988, \$82.20 in 1990, \$83.60 in 1991, \$87.20 in 1993, \$100.34 in 1995, \$83.20 in 1997, \$85.30 in 1999, and \$95.20 in 2002.<sup>221</sup> The slowly rising trend line does not show large fluctuations except for 1995, which should probably be ignored. This pattern is roughly similar for families with incomes under 200 percent of poverty.

The trend line for poor families, however, shows large fluctuations from 1991 to 2002.<sup>222</sup> Average weekly child care expenditures by working mothers in families below the poverty level were reported to be \$79.25 in 1991, \$68.47 in 1993, \$88.53 in 1995, \$58.29 in 1997, \$82.07 in

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<sup>221</sup>Authors' calculation from Kristin Smith, "Who's Minding the Kids? Child Care Arrangements, Fall 1995," *Current Population Reports*, P70-70 (Washington, DC: U.S. Census Bureau, 2000), table 14, p. 26, available from: <http://www.census.gov/prod/2000pubs/p70-70.pdf>, accessed November 21, 2001; and Julia Overturf Johnson, "Who's Minding the Kids? Child Care Arrangements: Winter 2002," *Current Population Reports*, P70-101 (Washington, DC: U.S. Census Bureau, October 2005), table 6, p. 15, available from: <http://www.census.gov/prod/2005pubs/p70-101.pdf>, accessed February 28, 2006.

<sup>222</sup>The cost data for poor families prior to 1991 SIPP are not available.

1999, and \$67.20 in 2002.<sup>223</sup> Such large and unexplained survey-to-survey differences in average costs raise serious questions about the reliability of the data. Moreover, the increase in child care expenditures for poor families between 1997 and 1999 is particularly surprising because subsidized child care spending grew by about \$4.9 billion (47 percent) during this period, while the number of poor working mothers remained about the same.<sup>224</sup>

Some of this fluctuation may be due to actual changes in expenditure patterns, but the major problem seems to be the small sample of people reporting child care expenditures. That this fluctuation occurs only in the subgroup of families below the poverty line, and not for any of the larger groups, suggests that the fluctuation is likely the result of small sample sizes. The SIPP's small samples for many subgroups relating to child care create large standard errors and large confidence intervals. The 1995 SIPP estimate of the average weekly child care payment for working mothers below the poverty level, at the 90 percent confidence interval, ranged between \$70 and \$107. At the same level of confidence, the 1997 SIPP estimate ranged between \$55 and \$62, and the 2002 SIPP estimate ranged between \$57 and \$78. With such large confidence intervals, it is difficult to tell whether and by how much average child care expenditures increased or decreased between 1995 and 1997. (Unfortunately, the great majority of the published SIPP estimates on child care are not accompanied by standard errors.)

The SIPP's sample of poor families with working mothers is small. Although the 1996 SIPP core sample consists of 36,700 households, the 1997 child care module consists of only 593 poor working mothers who used regular child care arrangements for children under age fifteen

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<sup>223</sup>Authors' calculation from Kristin Smith, "Who's Minding the Kids? Child Care Arrangements, Fall 1995," *Current Population Reports*, P70-70 (Washington, DC: U.S. Census Bureau, 2000), table 14, p. 26, available from: <http://www.census.gov/prod/2000pubs/p70-70.pdf>, accessed November 21, 2001; Kristin Smith, "Who's Minding the Kids? Child Care Arrangements: Spring 1997," *Current Population Reports*, P70-86 (Washington, DC: U.S. Census Bureau, July 2002), table 8, "Weekly Child Care Payments by Families with Mothers: Spring 1997," p. 17, available from: <http://www.census.gov/prod/2002pubs/p70-86.pdf>, accessed April 3, 2003; U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1999," Detailed Tables (PPL-168) (Washington, DC: U.S. Census Bureau, 2000), table 6, "Average Weekly Child Care Expenditures by Employed Mothers of Children Under 14, Children Under 5 and Children 5 to 14: Spring 1999," available from <http://www.census.gov/population/socdemo/child/ppl-168/tab06.pdf>, accessed April 17, 2003; and Julia Overturf Johnson, "Who's Minding the Kids? Child Care Arrangements: Winter 2002," *Current Population Reports*, P70-101 (Washington, DC: U.S. Census Bureau, October 2005), table 6, p. 15, available from: <http://www.census.gov/prod/2005pubs/p70-101.pdf>, accessed February 28, 2006.

<sup>224</sup>According to the CPS, the total number of poor working mothers with children under age eighteen was 2,683,000 in 1997 and 2,643,000 in 1999; and the total number of poor working mothers with children under age six was 1,462,000 in 1997 and 1,474,000 in 1999. Authors' calculation from U.S. Census Bureau, "Poverty—Detailed Poverty Tables: 1999 P60 Package," *Current Population Survey (CPS) Publications* (Washington, DC: U.S. Census Bureau, undated), table 10, available from: <http://pubdb3.census.gov/macro/031998/pov/toc.htm>, accessed July 25, 2005; and U.S. Census Bureau, "Poverty—Detailed Poverty Tables: 1999 P60 Package," *Current Population Survey (CPS) Publications* (Washington, DC: U.S. Census Bureau, undated), table 10, available from: [http://pubdb3.census.gov/macro/032000/pov/new10\\_001.htm](http://pubdb3.census.gov/macro/032000/pov/new10_001.htm), accessed July 25, 2005.

(including the care provided by themselves while working);<sup>225</sup> among them, only 345 working poor mothers use paid child care arrangements.<sup>226</sup> The sample size for preschoolers is even smaller—the total number of working mothers with preschoolers (“children under age five”) in the 1997 child care module is just 2,683 mothers. Of this number, only 389 are poor working mothers who used regular child care arrangements for their preschoolers;<sup>227</sup> and only 127 such mothers used paid child care.<sup>228</sup> Thus, any estimate of a poor family’s average child care payments for preschoolers has to be calculated from the information provided by these 127 mothers. The inevitable result of such small sample sizes is substantial variability and large standard errors.<sup>229</sup> We have not conducted similar data analyses of the sample sizes of the child care modules for the 1999 SIPP, but we know that the 1999 sample is smaller due to the larger attrition rate (21 percent in 1997 versus 34 percent in 1999),<sup>230</sup> as discussed below.

As a result, the estimates of the average weekly child care payments by poor families with working mothers have large standard errors and should be used with care. According to the SIPP publications on child care, the standard errors for the estimates of the weekly child care payments (for children under fifteen) made by such families are \$5.25 in 1986, \$6.81 in 1987, \$12.81 in 1991, \$18.41 in 1995, \$3.81 in 1997, and \$6.26 in 2002.<sup>231</sup> (The publication on 1999

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<sup>225</sup>Authors’ calculation based on U.S. Census Bureau, 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.

<sup>226</sup>Authors’ calculation based on U.S. Census Bureau, 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. We have not estimated the sample size for the same subgroup for other years, but we assume the sample size is roughly the same in each year.

<sup>227</sup>Authors’ calculation based on U.S. Census Bureau, 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.

<sup>228</sup>Authors’ calculation based on U.S. Census Bureau, 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.

<sup>229</sup>Marija J. Norusis, *The SPSS Guide to Data Analysis* (Chicago, IL: SPSS Inc., 1990), p. 193.

<sup>230</sup>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.

<sup>231</sup>Authors’ calculation from Martin O’Connell and Amara Bachu, “Who’s Minding the Kids? Child Care Arrangements: Winter 1986–87,” U.S. Census Bureau, *Current Population Reports*, P70-20 (Washington, DC: Government Printing Office, 1990), table 7, pp. 20–21; Lynne M. Casper, Mary Hawkins, and Martin O’Connell, “Who’s Minding the Kids? Child Care Arrangements: Fall 1991,” U.S. Census Bureau, *Current Population Reports*, P70-36 (Washington, DC: Government Printing Office, 1994), table 10, p. 37; Kristin Smith, “Who’s Minding the Kids? Child Care Arrangements, Fall 1995,” *Current Population Reports*, P70-70 (Washington, DC: U.S. Census Bureau, 2000), table 14, p. 26, available from: <http://www.census.gov/prod/2000pubs/p70-70.pdf>, accessed November 21, 2001; Kristin Smith, “Who’s Minding the Kids? Child Care Arrangements, Fall 1997,” *Current Population Reports*, P70-86 (Washington, DC: U.S. Census Bureau, 2002), table 8, p. 17, available from: <http://www.census.gov/prod/2002pubs/p70-86.pdf>, accessed April 17, 2003; and Julia Overturf Johnson, “Who’s Minding the Kids? Child Care Arrangements: Winter 2002,” *Current Population Reports*, P70-101 (Washington,



payments does not provide any information on the standard errors for its estimates.) The data on child care expenditures for poor preschoolers are even more uncertain due to a much smaller sample, but the Census Bureau does not report standard errors or confidence intervals for such data.

Moreover, cross-year comparisons of parental payments are problematic, in large part because of these standard errors. For example, the 1995 SIPP estimate of the average weekly child care payment for working poor mothers was \$88.89;<sup>232</sup> for 1997, it was \$58.40.<sup>233</sup> However, it would be wrong to infer that the poor working mothers paid \$30.49 less for child care per week in 1997 than in 1995, because both estimates have high standard errors.<sup>234</sup> At the 90 percent confidence level, the 1995 estimate of the poor mothers' average weekly child care expenditure ranges between \$59.02 and \$119.23,<sup>235</sup> whereas the 1997 estimate ranges between \$54.59 and \$62.21,<sup>236</sup> and the 1999 estimate ranges between \$56.90 and \$77.50.<sup>237</sup> Because the true value for each year can fall anywhere within its respective range with 90 percent confidence (the usual Census Bureau standard for statistical testing), what the SIPP tabulations tell us is that the average weekly child care expenditure for poor working mothers in 1995 was not statistically different from the average in 1997 and 2002. (All figures are in 2002 dollars.)

As described below, this results in large sampling variability that could cause the estimates to vary significantly from panel to panel. This, in turn, results in the large standard

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DC: U.S. Census Bureau, October 2005), table 6, <http://www.census.gov/prod/2005pubs/p70-101.pdf>, accessed March 7, 2006.

<sup>232</sup>Kristin Smith, "Who's Minding the Kids? Child Care Arrangements, Fall 1995," *Current Population Reports*, P70-70 (Washington, DC: U.S. Census Bureau, 2000), table 14, p. 26, available from: <http://www.census.gov/prod/2000pubs/p70-70.pdf>, accessed November 21, 2001.

<sup>233</sup>Kristin Smith, "Who's Minding the Kids? Child Care Arrangements, Fall 1995," *Current Population Reports*, P70-70 (Washington, DC: U.S. Census Bureau, 2000), table 14, p. 26, available from: <http://www.census.gov/prod/2000pubs/p70-70.pdf>, accessed November 21, 2001.

<sup>234</sup>See Kristin Smith, "Who's Minding the Kids? Child Care Arrangements, Fall 1995," *Current Population Reports*, P70-70 (Washington, DC: U.S. Census Bureau, 2000), table 14, p. 26, available from: <http://www.census.gov/prod/2000pubs/p70-70.pdf>, accessed November 21, 2001.

<sup>235</sup>Authors' calculation from Kristin Smith, "Who's Minding the Kids? Child Care Arrangements, Fall 1995," *Current Population Reports*, P70-70 (Washington, DC: U.S. Census Bureau, 2000), table 14, p. 26, available from: <http://www.census.gov/prod/2000pubs/p70-70.pdf>, accessed November 21, 2001.

<sup>236</sup>Authors' calculation from Kristin Smith, "Who's Minding the Kids? Child Care Arrangements, Spring 1997," *Current Population Reports*, P70-86 (Washington, DC: U.S. Census Bureau, July 2002), table 8, p. 17, available from: <http://www.census.gov/prod/2002pubs/p70-86.pdf>, accessed November 21, 2001.

<sup>237</sup>Authors' calculation from Julia Overturf Johnson, "Who's Minding the Kids? Child Care Arrangements: Winter 2002," *Current Population Reports*, P70-101 (Washington, DC: U.S. Census Bureau, October 2005), table 6, <http://www.census.gov/prod/2005pubs/p70-101.pdf> (accessed March 7, 2006).

errors and broad confidence intervals that render SIPP's data on parental expenditures by poor families unreliable.

*Benchmark data.* As with the number of paying parents, we use the NSAF to assess the accuracy of the SIPP data on weekly child care expenditures. Under each of the three breakdowns for which we examine SIPP payment data, the NSAF finds significantly lower weekly child care expenditures. The NSAF reports that the average weekly expenditure on child care among "working families" that paid for child care was \$74.83 in 1997<sup>238</sup> and \$76.34 in 1999.<sup>239</sup> At or above 200 percent of poverty, the NSAF reports average weekly expenditures of \$82.91 in 1997<sup>240</sup> and \$83.40 percent in 1999.<sup>241</sup> Below 200 percent of poverty, the NSAF reports average weekly child care expenditures of \$56.75 in 1997<sup>242</sup> and \$58.45 in 1999.<sup>243</sup> (We do not have benchmark data for 2002.)

We do not have comparable benchmark data for the SIPP's child care expenditure patterns among families with incomes below poverty. We evaluate the SIPP's estimates in this category only in terms of their internal consistency.

*Comparability.* The same comparability issues described above regarding the percentage of parents paying for child care also apply to the SIPP's and the NSAF's data on child care expenditures.

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<sup>238</sup>Authors' calculation from Linda Giannarelli and James Barsimantov, *Child Care Expenses of America's Families* (Washington, DC: the Urban Institute, December 2000), p. 17, available from: [http://www.urban.org/UploadedPDF/310028\\_occa40.pdf](http://www.urban.org/UploadedPDF/310028_occa40.pdf), accessed October 29, 2003.

<sup>239</sup>Authors' calculation from Linda Giannarelli and James Barsimantov, *Child Care Expenses of America's Families* (Washington, DC: the Urban Institute, December 2000), figure 1, "Child Care Expenses of Working Families with Children Age 13," p. 3, available from: [http://www.urban.org/UploadedPDF/310028\\_occa40.pdf](http://www.urban.org/UploadedPDF/310028_occa40.pdf), accessed October 29, 2003.

<sup>240</sup>Authors' calculation from Linda Giannarelli and James Barsimantov, *Child Care Expenses of America's Families* (Washington, DC: the Urban Institute, December 2000), p. 17, available from: [http://www.urban.org/UploadedPDF/310028\\_occa40.pdf](http://www.urban.org/UploadedPDF/310028_occa40.pdf), accessed October 29, 2003.

<sup>241</sup>Authors' calculation from Linda Giannarelli, Sarah Adelman, and Stefanie Schmidt, *Getting Help with Child Care Expenses*, (Washington, DC: the Urban Institute, February 2003), p. 17, available from: [http://www.urban.org/UploadedPDF/310615\\_OP62.pdf](http://www.urban.org/UploadedPDF/310615_OP62.pdf), accessed October 29, 2003.

<sup>242</sup>Authors' calculation from Linda Giannarelli and James Barsimantov, *Child Care Expenses of America's Families* (Washington, DC: the Urban Institute, December 2000), p. 17, available from: [http://www.urban.org/UploadedPDF/310028\\_occa40.pdf](http://www.urban.org/UploadedPDF/310028_occa40.pdf), accessed October 29, 2003.

<sup>243</sup>Authors' calculation from Linda Giannarelli, Sarah Adelman, and Stefanie Schmidt, *Getting Help with Child Care Expenses*, (Washington, DC: the Urban Institute, February 2003), p. 17, available from: [http://www.urban.org/UploadedPDF/310615\\_OP62.pdf](http://www.urban.org/UploadedPDF/310615_OP62.pdf), accessed October 29, 2003.

*Assessment.* The SIPP's cross-year validity, as well as our above assessment of the NSAF's internal consistency and general reliability leads us to believe that its expenditure data are more reliable than the SIPP's.

Another survey, the CS, further reinforces our view that the NSAF data on parental expenditures are more accurate than the SIPP data. The CS estimate of the average weekly child care expenditures for working-mother families below 200 percent of poverty is about 35 percent lower than the SIPP's estimate (\$50.24 in CS<sup>244</sup> versus \$76.66 in the SIPP<sup>245</sup>). The NSAF estimate (\$58.45) is about 24 percent lower than the SIPP's estimate.

Although the NSAF estimate is still significantly higher than the CS estimate, this pattern is to be expected and can be explained, at least in part, by the differences between the two surveys. As we mention above, the CS surveyed only those parents working a minimum of twenty hours per week. As shown in our Early Education and Child Care Model,<sup>246</sup> parents working more hours are more likely to use center-based care, and those arrangements, in turn, are the most likely to be subsidized.

Thus, the parents who pay for child care surveyed by the CS would, on average, spend less money than those in the same income bracket surveyed by the NSAF. Accounting for this difference, the CS estimates lead us to believe that the NSAF provides a much more accurate measurement of parental expenditures than does the SIPP.

*Miscount.* The SIPP reports a consistently larger weekly child care expenditure than those in the 1997 and 1999 NSAFs. For 1997, the SIPP reports that families with working mothers who paid for child care spent \$84.00 weekly, about 12 percent higher than reported by the NSAF (\$74.83). For 1999, the SIPP reports a weekly expenditure of \$86.43, also 12 percent higher than the expenditures reported by the NSAF (\$76.34).

Among families with working mothers and incomes at or above 200 percent of poverty who paid for child care, the 1997 SIPP reports a weekly child care expenditure of \$89.51, about 8 percent higher than reported by the NSAF (\$82.91). For 1999, the SIPP reports a weekly expenditure of \$88.55, about 6 percent higher than the expenditures reported by the NSAF (\$83.40).

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<sup>244</sup>Authors' calculation from Nancy Burstein, Jean I. Layzer, and Kevin Cahill, *National Survey of Child Care for Low-Income Families: Patterns of Child Care Use Among Low-Income Families*, Final Draft (Washington, DC: Abt Associates, Inc., August 1, 2001), p. 4-8.

<sup>245</sup>Authors' calculation from U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1999," Detailed Tables (Washington, DC: U.S. Census Bureau, January 24, 2003), table 6, "Average Weekly Child Care Expenditures by Employed Mothers of Children Under 14, Children Under 5 and Children 5 to 14: Spring 1999," available from: <http://www.census.gov/population/socdemo/child/ppl-168/tab06.pdf>, accessed October 29, 2003.

<sup>246</sup>University of Maryland, Welfare Reform Academy, "Early Education/Child Care Model," 2005.

As with its count of the proportion of families who pay, the SIPP's miscounts for expenditures are most severe among families with working mothers and incomes under 200 percent of poverty. The 1997 SIPP reports that families with working mothers and incomes below 200 percent of poverty who paid for child care spent \$68.83 weekly, about 21 percent higher than reported by the NSAF (\$56.75). The 1999 SIPP reports a weekly expenditure of \$76.66, about 31 percent higher than the expenditures reported by the NSAF (\$58.45).

*Explanations.* The Census Bureau staff thinks that the source of these discrepancies may be a change in the way total family expenditures are derived. Prior to the 1996 SIPP panel, total family expenditures for child care were derived by aggregating the expenditures per child based on a single question. Beginning in the 1996 SIPP panel, total family expenditures have been obtained by aggregating estimates for each arrangement for each child in the family. According to Martin O'Connell of the Census Bureau, asking for more detail could have led to the reporting of additional expenditures, and may also have increased the variability of the estimates as more component costs were used to produce an estimate of total family expenditures for child care.<sup>247</sup> Each component cost has a variance associated with it, and missing data need to be edited and imputed, so the combined effect of increasing the number of components increases the variability of the estimate.

We doubt, however, that this methodological change is the cause of the problems because the SIPP estimates of poor families' weekly child care expenditures for the years prior to the 1996 panel also show large fluctuations. Also contrary to this explanation is the fact that the more detailed questions in the 1996 SIPP panel did not lead to the "additional expenditures." Both the 1997 and 1999 SIPP's expenditure estimates are lower than the 1995 SIPP's: for families with working mothers, the cost was \$100.34 in 1995, \$84.10 in 1997 and \$85.31 in 1999; for poor families with working mothers, the cost was \$88.53 in 1995, \$58.29 in 1997, \$82.07 in 1999.<sup>248</sup>

A more likely explanation is the SIPP's biased sample. Because poor families tend to spend less on child care than more well-to-do families, a lower proportion of poor families in the sample would be expected to result in a higher estimate of average family spending on child care.

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<sup>247</sup>Martin O'Connell, U.S. Census Bureau, email message to authors, February 1, 2005.

<sup>248</sup>Authors' calculation from Kristin Smith, "Who's Minding the Kids? Child Care Arrangements, Fall 1995," *Current Population Reports*, P70-70 (Washington, DC: U.S. Census Bureau, 2000), table 14, p. 26, available from: <http://www.census.gov/prod/2000pubs/p70-70.pdf>, accessed November 21, 2001; Kristin Smith, "Who's Minding the Kids? Child Care Arrangements: Spring 1997," *Current Population Reports*, P70-86 (Washington, DC: U.S. Census Bureau, July 2002), table 8, "Weekly Child Care Payments by Families with Mothers: Spring 1997," p. 17, available from: <http://www.census.gov/prod/2002pubs/p70-86.pdf>, accessed April 3, 2003; and U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1999," Detailed Tables (PPL-168) (Washington, DC: U.S. Census Bureau, 2000), table 6, "Average Weekly Child Care Expenditures by Employed Mothers of Children Under 14, Children Under 5 and Children 5 to 14: Spring 1999," available from <http://www.census.gov/population/socdemo/child/ppl-168/tab06.pdf>, accessed April 17, 2003.

The SIPP's high proxy response rate may be another explanation. As previously discussed, for data between 1995 and 1999, the SIPP has a proxy response rate of 30 to 40 percent. Many of the proxy respondents might not have known the exact amount of parental expenditures on child care.

## 5

# Problems with Published Reports

The problem of drawing reliable data from the SIPP is exacerbated by how its findings are presented. The demarcation between “preschoolers” and “gradeschoolers” in its published reports skews the data by obscuring the problems resulting from the questionnaire’s own, differently placed, demarcation between preschool-age and school-age children. Moreover, by limiting “preschoolers” to children under five regardless of the child’s age at the beginning of the school year, it misclassifies large numbers of five-year-olds who are not yet in school.

In addition, despite the Census Bureau’s awareness of sample size issues in the SIPP, its reports rarely include information on confidence intervals and standard errors that would allow for proper evaluation of SIPP data. The SIPP reports also fail to include the necessary information to make proper cross-year comparisons, despite the sometimes drastic changes to the SIPP’s questionnaire and methodology from one year to the next. Even if the Census Bureau’s SIPP reports were to include such relevant information, however, the years between the survey and the publication of its findings ensure that, by the time of their release, the data are of limited use for policy makers.

**Definitions of preschooler and gradeschooler.** *The SIPP reports present child care data as either “preschooler” or “gradeschooler” data. The former category includes children younger than five, the latter includes children ages five to fourteen, regardless of school-enrollment status. This division obscures problems with the age division in the questionnaire, fails to reflect the real-world division between preschool-age and grade-school-age children, and results in the misclassification of many five-year-olds as school-age, even if they were not yet five years old the beginning of the school year. In the 1997 and 1999 SIPP, at least two-thirds of five-year-old preschoolers are misclassified as school-age children.*

The SIPP reports divide tables of child care data into two major categories: “preschoolers” and “gradeschoolers.” The reports define a “preschooler” by age alone, referring to any child who is “under 5 years old.”<sup>249</sup> They define “gradeschoolers” as “children 5 to 14 years old,” and the cutoff month for children’s age is “the fourth month of the reference

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<sup>249</sup>The SIPP defines “preschoolers” as “children under 5 years old,” and “grade school age children” as “children 5 to 14 years old.” Moreover, the cutoff month for children’s age is “the fourth month of the reference period.” For example, in the 1997 SIPP, the fourth month of the reference period was June. See Kristin Smith, “Who’s Minding the Kids? Child Care Arrangements, Spring 1997,” *Current Population Reports*, P70-86 (Washington, DC: U.S. Census Bureau, July 2002), p. 2, available from: <http://www.census.gov/prod/2000pubs/p70-86.pdf>, accessed April 4, 2003; and U.S. Census Bureau, *Survey of Income and Program Participation 1996 Panel Wave IV Topical Module Data Dictionary* (Washington, DC: U.S. Census Bureau, 2001), available from: <http://ferret.bls.census.gov/cgi-bin/ferret> accessed March 16, 2001.

period.”<sup>250</sup> This demarcation poses two problems. First, the reports use a different age cutoff than the one used in the questionnaire, which has different lists of child care arrangements for younger children, ages zero to five, and for older children, ages six to fourteen. Second, basing the distinction between preschooler and gradeschooler solely on an age cutoff assumes a relationship between age and arrangement that, at least on a national level, does not exist. In both situations, this binary classification obscures or mislabels the real-life situation of many of the five- and six-year-old children whose care arrangements are described.

Publishing child care data for preschoolers and gradeschoolers obscures the SIPP’s more significant distinction between its arrangement data for children under six years old and for children ages six to fourteen. The structure of the SIPP questionnaire limits children ages zero to five to preschool arrangements and limits children six to fourteen to school-age arrangements. This means that a child reported as six years old cannot be recorded by the SIPP as enrolled in Head Start or nursery/preschool.

By including five-year-olds with the six- to fourteen-year-olds as gradeschoolers, the SIPP’s reports hide this distinction. In the SIPP’s detailed tables, for example, there is no indication that Head Start and nursery/preschool exclude children older than five. These tables simply report enrollment by age groups, with the “5–8 years” group showing significant amounts of Head Start and nursery/preschool enrollment. Without reviewing the questionnaire, readers of the SIPP’s reports would not know that all of this enrollment, by necessity, refers to five-year-olds and that those older than five are excluded by the SIPP from Head Start or nursery/preschool.

As discussed above, this exclusion is quite significant given the timing of the SIPP. Significant numbers of five-year-olds enroll in Head Start or nursery/preschool, many of whom turn six between the time of school enrollment and the timing of the 1997, 1999, and 2002 SIPPs. These children would necessarily be undercounted in their proper arrangements and miscategorized elsewhere (including “no regular arrangement”). The SIPP report’s grouping of five-year-olds with older children conceals the cliff created by exclusion of children older than five.

Another problem with the division of children into preschoolers and gradeschoolers in SIPP reports is the arbitrary nature of the age cutoff. The SIPP reports use age five as an absolute cutoff for determining whether a child is still a preschooler. But a child’s birthday does not signal a change in enrollment status or grade in school, and school cutoff dates vary. Every state (and many school districts) sets for itself the cutoff date that governs which children can and cannot yet enroll in school. This problem is compounded by the problem of age shifting, especially for children who turn five between school enrollment and the time of the survey. For example, as described above, the 1997 and 1999 SIPPs misclassify at least two-thirds of five-

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<sup>250</sup>Kristin Smith, “Who’s Minding the Kids? Child Care Arrangements, Spring 1997,” *Current Population Reports*, P70-86 (Washington, DC: U.S. Census Bureau, July 2002), p. 2, available from: <http://www.census.gov/prod/2000pubs/p70-86.pdf>, accessed April 4, 2003.

year-old preschool-age children as school-age children, contributing to miscounts of children in center-based care and kindergarten. A better definition of preschoolers would be children from birth to age four and children age five who were not attending school at the time of the survey.<sup>251</sup>

Before turning to this problem in the child care data, we examine how this problem manifests itself in SIPP estimates of kindergarten enrollment. Discussing kindergarten enrollment is helpful for several reasons. There is no recognized benchmark for comparing data on preschool children, but for school-age children, there are established surveys on school enrollment, such as the October CPS School Enrollment Supplement and the National Household Education Survey (NHES). The estimates of kindergarten enrollment from the CPS and the NHES provides a benchmark to help evaluate the scale of the SIPP misclassification of preschool children as school-age children.

Because of their definitions of “preschoolers” and “gradeschoolers,” the 1997 and 1999 SIPPs (and, to a slightly lesser extent, the 2002 SIPP) misclassified a large number of five-year-old children not yet in school as school-age children. These surveys were conducted at the end of a school year, and many children who were four years old during the school enrollment season turned five by the survey period. At issue are these five-year-olds: Should they be counted as preschoolers or school-age children? These children were not age-eligible for kindergarten at the beginning of the school year, although they turned five years old by the time of the survey. The NHES defines them as preschool-age children, that is “children who were under age 6 and were not yet enrolled in kindergarten.”<sup>252</sup> The SIPP’s definition, however, classifies them as school-age children, and thereby understates the number of preschool-age children.

Kindergarten usually admits students once a year in August or September, although, unlike grade school, attendance is not compulsory in most states. Most states require children to be at least five years old (or turn five early in the school year, with cutoff dates that vary from state to state) in order to enroll in public kindergarten. Table 15 shows that kindergarten eligibility cutoff dates vary across states significantly. Of the forty-five states and the District of Columbia that had laws or rules in 2000, twenty-three states had cutoff dates on or before

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<sup>251</sup>The proposed definition is not perfect, because it would include children who had reached age five in the school enrollment season but did not attend school. The October CPS School Enrollment Supplement shows that about 20 percent of children age five did not enroll in kindergarten or elementary school in October 1996. (See U.S. Census Bureau, “Detailed Tables,” in “School Enrollment–Social and Economic Characteristics of Students: October 1996,” *Current Population Reports*, P20-500 (Washington, DC: U.S. Census Bureau, 1998), table 3, p. 8, available from: <http://www.census.gov/prod/3/98pubs/p20-500u.pdf>, accessed January 24, 2002). However, this is the best estimate we can obtain, because there is no information on children’s birth month in the survey. Moreover, the margin of error for this definition is significantly smaller than the one that includes only children ages zero to four, because it would exclude over two-thirds of the children who were currently age five but who had been four years old during the 1996 school enrollment season and had not been eligible for kindergarten enrollment.

<sup>252</sup>Sandra L. Hofferth, Kimberlee A. Shauman, Robin R. Henke, and Jerry West, *Characteristics of Children’s Early Care and Education, Data from the 1995 National Household Education Survey*, National Center for Education Statistics, Statistical Analysis Report, NCES 98-128 (Washington, DC: U.S. Department of Education, 1998), p. vi, available from: <http://nces.ed.gov/pubs98/98128.pdf>, accessed May 16, 2002.



September 1. Fourteen states had cutoff dates between September 2 and October 30, 2000. Eight states and the District of Columbia required that, to be enrolled in kindergarten, children turn five by December 2000 or January 1, 2001. In the remaining five states local school districts set their own age requirements and cutoff dates.<sup>253</sup>

This variation in the eligibility cutoff dates for school enrollment makes it difficult for a national child care survey to count preschool-age children accurately. For example, consider a child born on December 15, 1995, who was four years old in early December 2000, and who attended a day care center. If he lived in New York, California, or any of the thirty-nine states with cutoff dates before December 15, his parents would not have had the option of enrolling him in public kindergarten that year. Although the child turned five years old on December 15, 2000, he would have had to wait until fall 2001 to enter kindergarten. Had the SIPP child care module been conducted in November 2000 (before his birthday), he would have been counted as a four-year-old attending a day care center. But if the survey had been conducted a couple of months later, in the spring and summer of 2001 (after his birthday), the child would have been counted as a five-year-old who did not attend kindergarten.

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<sup>253</sup>Judith Lohman, "Kindergarten Entrance Age," OLR Research Report, 2000-R-1188, Office of Legislative Research, Connecticut General Assembly, December 18, 2000, available from: <http://www.cga.state.ct.us/2000/rpt/olr/htm/2000-r-1188.htm>, accessed January 18, 2002.

**Table 15.**  
**Age Cutoff Dates for Kindergarten Enrollment for States with State-Wide Laws and the District of Columbia (2000)**

| State        | Age 5 by    | State          | Age 5 by     | State                | Age 5 by         |
|--------------|-------------|----------------|--------------|----------------------|------------------|
| Indiana      | June 1      | Oklahoma       | September 1  | Tennessee            | September 30     |
| Missouri     | July 1      | Oregon         | September 1  | Virginia             | September 30     |
| Alaska       | August 15   | South Carolina | September 1  | Kentucky             | October 1        |
| Delaware     | August 31   | South Dakota   | September 1  | Maine                | October 15       |
| Kansas       | August 31   | Texas          | September 1  | Nebraska             | October 15       |
| North Dakota | August 31   | West Virginia  | September 1  | North Carolina       | October 16       |
| Washington   | August 31   | Wisconsin      | September 1  | Michigan             | December 1       |
| Alabama      | September 1 | Utah           | September 2  | New York             | December 1       |
| Arizona      | September 1 | Montana        | September 10 | California           | December 2       |
| Florida      | September 1 | Arkansas       | September 15 | District of Columbia | December 31      |
| Georgia      | September 1 | Iowa           | September 15 | Hawaii               | December 31      |
| Idaho        | September 1 | Wyoming        | September 15 | Maryland             | December 31      |
| Illinois     | September 1 | Louisiana      | September 30 | Rhode Island         | December 31      |
| Minnesota    | September 1 | Nevada         | September 30 | Connecticut          | January 1 (2001) |
| Mississippi  | September 1 | Ohio           | September 30 | Vermont              | January 1 (2001) |
| New Mexico   | September 1 |                |              |                      |                  |

Source: Judith Lohman, “Kindergarten Entrance Age,” OLR Research Report, 2000-R-1188, (Office of Legislative Research, Connecticut General Assembly, December 18, 2000), available from: <http://www.cga.state.ct.us/2000/rpt/olr/htm/2000-r-1188.htm>, accessed January 18, 2002.

This example indicates that the closer a survey period is to the school enrollment cutoff date, the more accurately its data will reflect kindergarten attendance by the child’s age. Conversely, the more time that elapses between the cutoff date and the survey period, the more age shifting occurs and the less correlated a child’s classification as school-age will be with that child’s chronological age. As demonstrated above, the belated timing of the SIPP resulted in the reduction of the number of five-year-olds in kindergarten by roughly 67 percent (one-twelfth per month multiplied by eight months, or two-thirds for the year).<sup>254</sup> Thus, because the SIPP was fielded about eight months after the beginning of the school year, these five-year-olds are more accurately considered preschoolers.

This discrepancy raises an important question regarding the definition of a preschool-age child: Should this status be defined by the child’s age during the survey season, or should it be defined by the child’s age as of the local kindergarten cutoff date? Or should there be some special treatment for children age five who are not yet in kindergarten? Further, surveys conducted in different months of the year can generate disparate results if comparisons of kindergarten attendance at the time of the survey are based only on age.

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<sup>254</sup>The fact that thirteen states set their school eligibility cutoffs at October 1 or later, including the two large states of California and New York, makes this estimate even less exact.

This definition of preschooler not only affects data on kindergarten enrollment, but also creates the appearance of undercounts among preschool-age children cared for in organized facilities, such as day care centers, nursery/preschool, and Head Start. Roughly two-thirds of five-year-olds (or nearly 3 million)<sup>255</sup> in June 1997 and 1999 were age four during the previous school enrollment period. They were, in fact, preschool-age. The SIPP child care data on preschool children, however, reported them with the older children because they had turned five. They would thus be reported as five- to eight-year-old gradeschoolers. Because the four-year-olds are much more likely than the younger preschoolers to be cared for in centers,<sup>256</sup> reporting these children separately as older children gives the appearance of even more severe undercounts in the tables of preschoolers' child care arrangements than may actually exist.

**Confidence intervals/Standard errors.** *Although the sample size of small subgroups within the SIPP raises concerns about sampling errors, the Census Bureau's publications on child care rarely provide information on the confidence intervals and standard errors.*

Because the sample of the 1996 SIPP Panel was randomly selected and is large (36,700 households), sampling error for data on the general population should be small. The same is not true for small subgroups within the sample—such as poor families with working mothers. As the Census Bureau has warned:

Caution should also be used when interpreting results based on a relatively small number of cases. Summary measures probably do not reveal useful information when computed on a base (subpopulation) smaller than 75,000.<sup>257</sup>

The number (75,000) that the Census Bureau cautions here is actually a weighted number from a much smaller size of sampled persons. Because the average weight the Census Bureau uses for the 1997 SIPP is approximately 3,000,<sup>258</sup> it only takes about twenty-five sampled persons to reach a weighted subpopulation of 75,000. Estimates from twenty-five persons may not yield

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<sup>255</sup>According to the Census Bureau, the total number of four-year-olds in the United States was 4,148,000 in October 1996. See U.S. Census Bureau, "School Enrollment—Social and Economic Characteristics of Students, October 1996," *Current Population Reports*, P20-500, Detailed Tables (Washington, DC: U.S. Census Bureau, 1998), table 3, p. 8, available from: <http://www.census.gov/prod/99pubs/p20-516u.pdf>, accessed May 9, 2002.

<sup>256</sup> For example, in October 1996, 53 percent of four-year-olds were enrolled in nursery school, compared to 36 percent of three-year-olds. See U.S. Census Bureau, "School Enrollment—Social and Economic Characteristics of Students, October 1996," *Current Population Reports*, P20-500, Detailed Tables (Washington, DC: U.S. Census Bureau, 1998), table 3, p. 8, available from: <http://www.census.gov/prod/99pubs/p20-516u.pdf>, accessed May 9, 2002.

<sup>257</sup>The Census Bureau, "Source and Accuracy of the Data for the March 2001 Current Population Survey Microdata File" (Washington, DC: U.S. Census Bureau, 2001), available from: <http://www.bls.census.gov/cps/ads/2001/ssrcacc.htm#nserwarn>, accessed December 3, 2001.

<sup>258</sup> Authors' calculation based on U.S. Census Bureau, 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.

accurate information for the population the sample is supposed to represent. Unfortunately, information on how to gauge the reliability of such data is limited.

The standard error (or standard error of the mean) is a statistical term, indicating the level of variability in the distribution of sample means. In a statistical analysis, a large standard error results from a small sample with a high level of variability. If the level of variability remains the same, the smaller the sample size, the larger the standard error. In layman's terms, a large standard error indicates that the statistical estimate is highly uncertain due to its large variability. Such large standard errors make cross-year comparisons of child care payments problematic.

The Census Bureau's publications on child care provide very little information on confidence intervals and standard errors for the estimated SIPP numbers. For example, of the fourteen tables in "Who's Minding the Kids? Child Care Arrangements, Fall 1995," only one table reports standard errors (table 14, "Weekly Child Care Payments by Families With Employed Mothers for Selected Periods: 1984 to 1995").<sup>259</sup> In "Who's Minding the Kids? Child Care Arrangements: Spring 1997," of the nine tables, only one table provides confidence intervals (table 1, "Preschoolers in Different Types of Child Care Arrangements: Spring 1997") and standard errors are only provided in another table (table 8, "Weekly Child Care Payments by Families with Mothers: Spring 1997").<sup>260</sup> Moreover, the "detailed tables" on the SIPP's child care website,<sup>261</sup> which are not included in the official reports, also do not report confidence intervals and standard errors.<sup>262</sup>

**Cross-year comparisons.** *Between 1993 and 1995, and again between 1995 and 1997, key elements of SIPP's questionnaire and survey methodology were changed, so that comparisons of SIPP findings over time are problematic, at best, and should be made only after comparing the specific wording and order of the questions involved and the time of year that the survey was fielded.*

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<sup>259</sup>See Kristin Smith, "Who's Minding the Kids? Child Care Arrangements, Fall 1995," *Current Population Reports*, P70-70 (Washington, DC: U.S. Census Bureau, 2000), available from: <http://www.census.gov/prod/2000pubs/p70-70.pdf>, accessed November 21, 2001.

<sup>260</sup>See Kristin Smith, "Who's Minding the Kids? Child Care Arrangements, Spring 1997," *Current Population Reports*, P70-86 (Washington, DC: U.S. Census Bureau, July 2002), available from: <http://www.census.gov/prod/2002pubs/p70-86.pdf>, accessed November 21, 2001.

<sup>261</sup>See U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1997," *Current Population Reports*, P70-86, Detailed Tables (PPL 964) (Washington, DC: U.S. Census Bureau, October 31, 2000), available from: <http://www.census.gov/population/www/socdemo/child/ppl-964.html>, accessed December 29, 2003; and U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Spring 1999," Detailed Tables (Washington, DC: U.S. Census Bureau, January 24, 2003), available from: <http://www.census.gov/population/www/socdemo/child/ppl-168.html>, accessed October 29, 2003.

<sup>262</sup>See U.S. Census Bureau, *Child Care* (Washington, DC: U.S. Census Bureau, January 27, 2003), available from: <http://www.census.gov/population/www/socdemo/childcare.html>, accessed December 12, 2003.

In an effort to improve the quality of the data collected, the Census Bureau has repeatedly changed the SIPP's survey methods and questionnaires. These changes, however, have resulted in inconsistencies among the SIPP panels and made comparisons over time problematic. The Census Bureau itself warns that comparisons over time may be problematic:

Caution should be exercised when comparing data from [a specific SIPP] report with data from other SIPP publications or with data from other surveys. The comparability problems are caused by such sources as the *seasonal patterns* for many characteristics, different non-sampling errors, and *different concepts and procedures*.<sup>263</sup>

*Changes in countable child care.* Changes in the criteria for counting child care make comparisons over time difficult. Table 17 shows the changes in the wording of the questions asking about child care arrangements in the modules from 1984 to 2002. Some of these wording changes are particularly problematic. First, the standard of measurement changed. The question prior to 1995 used the word "usually," whereas the 1995 question did not use any modifier regarding the prevalence or frequency of the types of the arrangements. The 1997, 1999, and 2002 surveys added "on a regular basis" to the question and defined regular as "at least once a week during the past month." As a result, the estimates of child care arrangements in 1984–1994, 1995, and 1997–2002 are actually based on three different measurement standards.

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<sup>263</sup>U.S. Census Bureau, "Source and Accuracy Statement for the 1992 Public Use Files From The Survey of Income and Program Participation," U.S. Census Bureau, p. 8, available from: <http://www.census.gov/population/www/socdemo/child/1992sa/1992sa.pdf>, accessed November 21, 2001 (emphasis added).

**Table 17.**  
**Wording of the Question on Child Care Arrangements in Five SIPP Child Care Modules (1984–2002)**

| 1984-85 <sup>a</sup>  | 1985-88 <sup>b</sup>  | 1988-94 <sup>c</sup>  | 1995 <sup>d</sup>  | 1997-2002 <sup>e</sup>   |
|---|---|---|--|--|
| <p>During (Last month), what was (Name of child) usually doing or how was (Name of child) usually cared for during most of the hours that . . . worked?</p> <p><i>Mark the arrangement in which the child spent the most hours in a typical week.</i></p> <p><i>Mark (X) only one box</i></p> <p>What did (Name of child) do or how was (Name of child) cared for during most of the other hours that . . . worked?</p> <p><i>Mark the arrangement in which the child spent the second most hours in a typical week.</i></p> <p><i>Mark (X) only one box.</i></p> | <p>During (Last month), what was (Name of child) usually doing or how was (Name of child) usually cared for during most of the hours that . . . worked (was in school)?</p> <p><i>Mark the arrangement in which the child spent the most hours in a typical week.</i></p> <p><i>Mark (X) only one box</i></p> <p>What did (Name of child) do or how was (Name of child) cared for during most of the other hours that . . . worked (was in school)?</p> <p><i>Mark the arrangement in which the child spent the second most hours in a typical week.</i></p> <p><i>Mark (X) only one box.</i></p> | <p>During (Last month), what was (Name of child) usually doing or how was (Name of child) usually cared for during most of the hours that . . . worked (was in school/was looking for a job)?</p> <p><i>Mark the arrangement in which the child spent the most hours in a typical week.</i></p> <p><i>Mark (X) only one box</i></p> <p>What did (Name of child) do or how was (Name of child) cared for during most of the other hours that . . . worked (was in school/was looking for a job)?</p> <p><i>Mark the arrangement in which the child spent the second most hours in a typical week.</i></p> <p><i>Mark (X) only one box.</i></p> | <p>During a typical week in (Last month), please tell me if . . . used any of the following arrangements to look after (Name of child) while . . . was working (at school).</p> <p><i>Mark (X) all that apply.</i></p> | <p>During a typical week last month, please tell me if you used any of the following arrangement to look after (child’s name) on a regular basis. By regular basis, I mean at least ONCE A WEEK during the PAST MONTH.</p> <p>(1997 and 1999)<br/> <i>Mark (X) all that apply.</i></p> <p>(2002)<br/>                     FR NOTE: Not all flashcard categories may appear below. Only valid categories for respondent are listed on the screen.<br/>                     (1) Yes (2) No</p> |

Sources: For 1984–85: U.S. Census Bureau and Inter-university Consortium of Political and Social Research (ICPSR), *Survey of Income and Program Participation (SIPP) 1985 Panel Wave VI Rectangular Core and Topical Module Data (ICPSR 9176)* (Ann Arbor, MI: ICPSR, 2000), pp. C3-1–C3-2, available from: <http://www.icpsr.umich.edu/cgi/archive2.prl>, accessed December 27, 2001; for 1986–94: U.S. Census Bureau and Inter-university Consortium of Political and Social Research (ICPSR), *Survey of Income and Program Participation (SIPP) 1986 Panel Wave III Rectangular Core and Topical Module Data (ICPSR 9319)* (Ann Arbor, MI: ICPSR, 2000), pp. B3-1– B3-2, available from: <http://www.icpsr.umich.edu/cgi/archive2.prl>, accessed December 27, 2001; U.S. Census Bureau and Inter-university

Consortium of Political and Social Research (ICPSR), *Survey of Income and Program Participation (SIPP) 1986 Panel Wave VI Rectangular Core and Topical Module Data (ICPSR 9319)* (Ann Arbor, MI: ICPSR, 2001) pp. B3-4–B3-5, available from: <http://www.icpsr.umich.edu/cgi/archive2.prl>, accessed December 27, 2001; U.S. Census Bureau and Inter-university Consortium of Political and Social Research (ICPSR), *Survey of Income and Program Participation (SIPP) 1987 Panel Wave III Rectangular Core and Topical Module Data (ICPSR 9365)* (Ann Arbor, MI: ICPSR, 2000), pp. B3-1–B3-2, available from: <http://www.icpsr.umich.edu/cgi/archive2.prl>, accessed December 27, 2001; U.S. Census Bureau and Inter-university Consortium of Political and Social Research (ICPSR), *Survey of Income and Program Participation (SIPP) 1987 Panel Wave VI Rectangular Core and Topical Module Data (ICPSR 9365)* (Ann Arbor, MI: ICPSR, 2000), pp. C3-4–C3-5, available from: <http://www.icpsr.umich.edu/cgi/archive2.prl>, accessed December 27, 2001; U.S. Census Bureau and Inter-university Consortium of Political and Social Research (ICPSR), *Survey of Income and Program Participation (SIPP) 1988 Panel Wave III Rectangular Core and Topical Module Data (ICPSR 9568)* (Ann Arbor, MI: ICPSR, 2000), pp. B3-4–B3-5, available from: <http://www.icpsr.umich.edu/cgi/archive2.prl>, accessed December 27, 2001; U.S. Census Bureau and Inter-university Consortium of Political and Social Research (ICPSR), *Survey of Income and Program Participation (SIPP) 1989 Panel Wave III Rectangular Core and Topical Module Data (ICPSR 6427)* (Ann Arbor, MI: ICPSR, 2000), pp. B3-4–B3-5, available from: <http://www.icpsr.umich.edu/cgi/archive2.prl>, accessed December 27, 2001; U.S. Census Bureau and Inter-university Consortium of Political and Social Research (ICPSR), *Survey of Income and Program Participation (SIPP) 1992 Panel Wave VI Rectangular Core and Topical Module Data (ICPSR 6429)* (Ann Arbor, MI: ICPSR, 2001) pp. B2-4–B2-5, available from: <http://www.icpsr.umich.edu/cgi/archive2.prl>, accessed December 27, 2001; U.S. Census Bureau and Inter-university Consortium of Political and Social Research (ICPSR), *Survey of Income and Program Participation (SIPP) 1992 Panel Wave IX Rectangular Core and Topical Module Data (ICPSR 9365)* (Ann Arbor, MI: ICPSR, 2000), pp. 57-58, available from: <http://www.icpsr.umich.edu/cgi/archive2.prl>, accessed December 27, 2001; U.S. Census Bureau, *Survey of Income and Program Participation, 1993 Panel Wave III Topical Module Questionnaire* (U.S. Census Bureau), available from: <http://www.sipp.census.gov/sipp/93w3tm.pdf> p. 57; and U.S. Census Bureau, *Survey of Income and Program Participation, 1993 Panel Wave VI Topical Module Questionnaire*, available from <http://www.sipp.census.gov/sipp/93w6tm.pdf>, accessed November 21, 2001; for 1995: U.S. Census Bureau, *Survey of Income and Program Participation, 1993 Panel Wave IX Topical Module Questionnaire* (U.S. Census Bureau), available from: <http://www.sipp.census.gov/sipp/93w9tm.pdf>, p. 62, accessed November 21, 2001; for 1997: U.S. Census Bureau, *Survey of Income and Program Participation, 1996 Panel Wave IV Child Care Topical Module Questionnaire* (U.S. Census Bureau), available from: [http://www.sipp.census.gov/sipp/top\\_mod/1996/quests/wave4/childcar.htm](http://www.sipp.census.gov/sipp/top_mod/1996/quests/wave4/childcar.htm), accessed November 21, 2001; for 1999: U.S. Census Bureau, *SIPP 1996 Panel Wave 10 Child Care Topical Module Questions* (U.S. Census Bureau), available from: [http://www.sipp.census.gov/sipp/top\\_mod/1996/quests/wave10/childcar.htm](http://www.sipp.census.gov/sipp/top_mod/1996/quests/wave10/childcar.htm), accessed April 3, 2003; and for 2002: U.S. Census Bureau, *SIPP 2001 Panel Wave 4 Child Care Topical Module Questions* (U.S. Census Bureau), available from: [http://www.sipp.census.gov/sipp/top\\_mod/2001/quests/wave4/childcare.html](http://www.sipp.census.gov/sipp/top_mod/2001/quests/wave4/childcare.html), accessed March 8, 2006.

*Notes:*

<sup>a</sup>In the questionnaire for the SIPP 1984 Panel Wave 5 Child Care Module.

<sup>b</sup>In the questionnaire for the SIPP 1985 Panel Wave 6, the 1986 SIPP Panel Waves 3 and 6, and the 1987 SIPP Panel Wave 3 Child Care Module.

<sup>c</sup>In the questionnaire for the SIPP 1987 Panel Wave 4, the 1988 SIPP Panel Waves 3 and 6, the 1989 SIPP Panel Wave 3, the 1990 SIPP Panel Wave 3, the 1991 SIPP Panel Wave 3, 1992 Panel Waves 6 and 9, and the 1993 SIPP Panel Waves 3 and 6 Child Care Module.

<sup>d</sup>In the questionnaire for the 1993 Panel Wave 9 Child Care Module.

<sup>e</sup>In the questionnaire for the 1996 Panel Waves 4 and 10 Child Care Module and for the 2001 Panel Wave 4 Child Care Module..

*Changes in the number of arrangements counted.* The SIPP has also varied the maximum number of child care arrangements per child that are to be counted. Prior to 1995, the SIPP recorded no more than *two* arrangements per child: the “primary” arrangement and the “secondary” arrangement.<sup>264</sup> But since then (1995, 1997, 1999, and 2002), the SIPP has recorded *all* arrangements, presumably in order to capture a fuller picture of where children spend time (although these may be an example of more information being less). For example, in 1995, parents who were employed or enrolled in school used an average 2.2 arrangements per preschool child.<sup>265</sup> Prior to 1995, the designated parent defined the primary and secondary (if any) child care arrangement. Since then, the Census Bureau has identified the primary arrangement by determining the one with the most hours.

*Changes in recording parents’ work and school status.* The different SIPP panels are also inconsistent in how they record parents’ work and school status, making comparisons over time problematic. Before 1997, the SIPP asked a designated parent about the child care arrangement while the parent was working and/or in school (and/or looking for a job). In 1997, 1999, and 2002, however, the SIPP did not distinguish between the parent’s circumstance in the question on child care arrangements. The responses to that question, therefore, logically included all child care arrangements, regardless of the parents’ work status and work schedule. If a parent confirmed using a certain arrangement, the next question was on the weekly hours of the arrangement, followed by this question: “Of those hours per week that [the specific arrangement was used], how many of them were while your were working or at school?”<sup>266</sup> The data set was then edited to consist of two distinct groups of variables on child care arrangements. One group of variables was specified as “for cases where the designated parent or guardian is working or going to school,” and the other group of variables was specified as “for cases where the designated parent or guardian is not working or going to school.”<sup>267</sup> A question remains, however, as to how broadly “while working or at school” should be interpreted. Some parents,

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<sup>264</sup>In 1999, *primary* and *secondary* arrangements are defined by the Census Bureau as: “Child care arrangements for each child were classified as either primary or secondary arrangements depending on which arrangement was used most and which was used second most (as measured in hours) during a typical week.” See Lynne M. Casper, Mary Hawkins, and Martin O’Connell, “Appendix B. Definitions and Explanations,” in U.S. Census Bureau, “Who’s Minding the Kids? Child Care Arrangements: Fall 1991,” *Current Population Reports*, P70-36 (Washington, DC: U.S. Government Printing Office, 1994), p. B-1.

<sup>265</sup>Kristin Smith, “Who’s Minding the Kids? Child Care Arrangements, Fall 1995,” *Current Population Reports*, P70-70 (Washington, DC: U.S. Census Bureau, 2000), p. 3, table 1, “Number of Child Care Arrangements for Preschoolers During Their Parent’s Work, School, and Nonwork/School Hours: Fall 1995,” available from: <http://www.census.gov/prod/2000pubs/p70-70.pdf>, accessed November 21, 2001.

<sup>266</sup>U.S. Census Bureau, *Survey of Income and Program Participation, 1996 Panel Wave IV Child Care Topical Module Questionnaire* (Washington, DC: U.S. Census Bureau, 2001), available from: [http://www.sipp.census.gov/sipp/top\\_mod/1996/quests/wave4/childcar.htm](http://www.sipp.census.gov/sipp/top_mod/1996/quests/wave4/childcar.htm), accessed November 21, 2001.

<sup>267</sup>U.S. Census Bureau, *Survey of Income and Program Participation 1996 Panel Wave IV Topical Module Data Dictionary* (Washington, DC: U.S. Census Bureau, 2001), available from: <http://ferret.bls.census.gov/cgi-bin/ferret>, accessed March 2001.



for example, may have included time spent traveling to and from work, and others may not have. In any case, these differences make comparisons over time difficult and often questionable.

*Changes and corrections not reflected in earlier reports.* The Census Bureau's Current Population Survey (CPS) has an established system by which it revises its earlier reports. For example, the CPS data for 1990–2002 were originally published using population controls derived from the 1990 Decennial Census. When the data from the 2000 Decennial Census became available in 2003, the CPS data not only applied the new controls to its 2003 data, but also revised its 2000–2002 data to reflect this change.<sup>268</sup>

The SIPP seems to have no similar process for revision when changes or corrections occur in subsequent reports. Although it is not always possible, given the nature of the change in question, some changes should be reflected in earlier data. For example, as discussed above, SIPP reports prior to 2002 failed to count self-employed mothers as employed. This omission, the result of a coding error in the preparation of the reports, significantly altered the SIPP reports' data on the child care arrangements of children with employed mothers. Although this error was identified and corrected in the 2002 SIPP report, earlier SIPP reports have not been revised.

A single table in the 2002 SIPP report provides comparable historical data for the child care arrangements of preschoolers with employed mothers. This table corrects for the omission of self-employed mothers in earlier years. For comparisons other than the child care arrangements of preschoolers, however, no comparable numbers exist. Thus, some comparisons between 2002 and earlier years will be confounded by the differences in how each report defines an employed mother.

*Changes in the list of child care arrangements.* The SIPP's list of child care arrangements has also changed over time, creating inconsistencies for cross-year comparisons of child care patterns. Table 18 compares the child care arrangements listed in SIPP questionnaires from 1984 to 2002. Over this period, some arrangements were added and others dropped, but in general the list has grown longer, with some arrangements divided into more specific categories. In addition, the order in which possible arrangements were asked about has also changed, thus introducing another uncertainty into results. The items that have been added or dropped on the list include:

- **Enrichment activities.** “Child in organized school-based activity (before/after school)” was added to the list in 1986, and it remained in the questionnaire through 1994. After that, four types of enrichment activities were added in its place (“organized sports,” “lessons,” “clubs,” and “before/after school care program”). The enrichment activities in 1995, 1997, 1999, and 2002, however, were not compatible with the ones listed prior to 1995: between 1986 and 1994, the activities were restricted to “school-based” activities,

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<sup>268</sup>Bureau of Labor Statistics, *Several major changes affect the CPS (household) data – additional details* (Washington, DC: Bureau of Labor Statistics, 2003), available from: [http://www.bls.gov/cps/cps\\_notice02a.htm](http://www.bls.gov/cps/cps_notice02a.htm).

whereas between 1995 and 2002 three out of the four types of enrichment activities (organized sports, lessons, clubs) could be provided either at school or by other institutions or individuals. For instance, prior to 1995, a child taking a piano lesson outside of school would have been categorized in accordance to the instructor's status, because the enrichment activities were not included in the questionnaire as child care arrangements. A child taking piano lessons in school might be counted as being in an "organized school-based activity," whereas a child taking private piano lessons from a teacher at home might have been counted as cared for by a "non-relative." In 1995, 1997, 1999, and 2002, however, the child would have been classified as being under the arrangement of "lessons."

- **Attending school.** "Attending school (including kindergarten, elementary or secondary school)" was included as a type of child care arrangement between 1984 and 1994. The Census Bureau explained: "Attending school . . . [was] also included as [a] possible child care [arrangement] since [it indicates] what the child was doing during the hours that the mother was at work or in school."<sup>269</sup> Between 1995 and 2002, however, the category was dropped from the list. Instead, the parent was asked whether the child "usually" went to school in the past month in a separate question, followed by a question about hours the child spent in school.<sup>270</sup> Therefore, beginning with 1995, the periods in which the child was attending school were no longer considered to be a child care arrangement.
- **Self-care.** "Child cares for self" was included as a type of child care arrangement between 1984 and 1994. The Census Bureau explained: "Care by the child himself [was] also included as [a] possible child care arrangement since [it indicates] what the child was doing during the hours that the mother was at work or in school."<sup>271</sup> Between 1995 and 2002, however, this category was dropped from the list of child care arrangements.

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<sup>269</sup>Lynne M. Casper, Mary Hawkins, and Martin O'Connell, "Appendix B. Definitions and Explanations," in U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Fall 1991," *Current Population Reports*, P70-36, (Washington, DC: U.S. Government Printing Office, 1994), p. B-1.

<sup>270</sup>For 1995, U.S. Census Bureau, *Survey of Income and Program Participation, 1993 Panel Wave IX Topical Module Questionnaire* (Washington, DC: U.S. Census Bureau, undated), available from: <http://www.sipp.census.gov/sipp/93w9tm.pdf>, accessed November 21; for 1997: U.S. Census Bureau, *Survey of Income and Program Participation 1996 Panel Wave IV Topical Module Data Dictionary* (Washington, DC: U.S. Census Bureau, 2001), available from: <http://ferret.bls.census.gov/cgi-bin/ferret>, accessed March 2001. In its publication on child care, the Census Bureau listed school attendance as a type of child care arrangement. See Kristin Smith, "Who's Minding the Kids? Child Care Arrangements, Fall 1995," *Current Population Reports*, P70-70, (Washington, DC: U.S. Census Bureau, 2000), tables 9-11, pp. 17-20, available from: <http://www.census.gov/prod/2000pubs/p70-70.pdf>, accessed November 21, 2001. Our analysis, by contrast, did not include school attendance as a type of child care arrangement.

<sup>271</sup>Lynne M. Casper, Mary Hawkins, and Martin O'Connell, "Appendix B. Definitions and Explanations," in U.S. Census Bureau, "Who's Minding the Kids? Child Care Arrangements: Fall 1991," *Current Population Reports*, P70-36, (Washington, DC: U.S. Government Printing Office, 1994), p. B-1.

Instead, the parent was asked in a separate question whether a child cared for himself or herself, followed by a question about hours the child spent in self-care per week.<sup>272</sup>

- **Child care/day care center.** “Child care/day care center” was listed as a type of arrangement for all children in the survey (birth to age fourteen) from 1984 to 1994 and in 1997 to 2002. In 1995, however, it was listed as a type of arrangement only for children from birth to age five, because questions were only asked of children under six years old in that year. Therefore, in 1995 a child six years old and over who was cared for in a day care center would have to be categorized elsewhere, such as “other non-relative care.” The inconsistency makes cross year comparisons of child care arrangement patterns for children over age five problematic.
- **Head Start.** “Federally supported Headstart Program” was added in 1995. Previously, it would have been included in “day/group care center.”
- **Non-relative.** “Non-relative of child” was unspecified prior to 1995. In 1995, it was specified as “any other friend/neighbor/sitter/nanny/au pair.” In 1997, 1999, and 2002, the wording was “a non-relative such as a friend/neighbor/sitter/nanny/aupair.”
- **Family day care provider.** “Family day care provider caring for 2 or more kids outside [designated parent]’s home” was added to the list since 1995. Previously, this arrangement would be included in “non-relative of child.” (See table 18.)

*Changes in the sequence of child care arrangements.* The changes in the sequence of the arrangements could also affect the results. For example, before 1995 “[the designated parent] cared for child while at work/in school” was at the end of the list of arrangements (number twelve). After that, it moved up to become the second in the sequence. Non-relative care was in the middle of the list from 1984 to 1995, but moved to the end in 1997.

The same questions in a different order can often result in different answers, and sometimes the respondent’s answer to a question is influenced by previous questions. For example, the first two or three items on a long list usually attract more attention than do the rest. And, as the list of the child care arrangements has become longer over time, the entries toward the end of the list may not get as much attention as the ones near the beginning.<sup>273</sup> The child care arrangements that could have been most affected by such reordering of items might be the

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<sup>272</sup>For 1995, U.S. Census Bureau, *Survey of Income and Program Participation, 1993 Panel Wave IX Topical Module Questionnaire* (Washington, DC: U.S. Census Bureau, undated), available from: <http://www.sipp.census.gov/sipp/93w9tm.pdf>, accessed November 21; and for 1997: U.S. Census Bureau, *Survey of Income and Program Participation 1996 Panel Wave IV Topical Module Data Dictionary*, (Washington, DC: U.S. Census Bureau, 2001), available from: <http://ferret.bls.census.gov/cgi-bin/ferret>, accessed March 2001. Similarly, our analysis treated self-care as a type of child care arrangement.

<sup>273</sup>Robert Ferber and P. J. Verdoorn, *Research Methods in Economics & Business*, (New York: The Macmillan Company, 1962), pp. 219–223.

designated parent's care (moved from being last on the list to being second) and non-relative care (moved from the middle of the list to the end).

*Changes in the age groups examined.* Before 1995, the SIPP used the same list of child care arrangements for all children, regardless of their age. The 1995, 1997, 1999, and 2002 questionnaires, however, had separate and somewhat different lists for children from birth to age five and for children ages six to fourteen.

**Table 18.**  
**List of Arrangements in SIPP Child Care Module Questionnaires (1984–2002)**

| 1984–85 <sup>a</sup>                                     | 1986–94 <sup>b</sup>  | 1995 <sup>c</sup>  | 1997–99 <sup>d</sup>  | 2002   |
|--|---|--|---|--|
| 1. Child’s other parent/stepparent                       | 1. Child’s other parent/stepparent                                | 1. Child’s other parent/stepparent   | 1. Child’s other parent/stepparent  | 1. Child’s other parent/stepparent   |
| 2. Child’s brother/sister age 15 and older               | 2. Child’s brother/sister   | 2. . . . cared for (Name of child) while at work (in school)               | 2. . . . cared for (Name of child) while working or at school                     | 2. . . . cared for (Name of child) while working or at school                              |
| 3. Child’s brother/sister under age 15                   | 3. Child’s grandparent  | 3. Child’s brother/sister age 15 and older                                 | 3. Child’s brother/sister age 15 and older  | 3. Child’s brother/sister age 15 and older   |
| 4. Child’s grandparent                                   | 4. Other relative of child  | 4. Child’s brother/sister under age 15                                     | 4. Child’s brother/sister under age 15  | 4. Child’s brother/sister under age 15   |
| 5. Other relative of child                               | 5. Non-relative of child  | 5. Child’s grandparent   | 5. Child’s grandparent  | 5. Child’s grandparent   |
| 6. Non-relative of child                                 | 6. Child in day/group care center                                 | 6. Other relative of child   | 6. Other relative of child  | 6. Other relative of child   |
| 7. Child in day/group care center                        | 7. Child in nursery/preschool                                     | 7. Family day care provider caring for 2 or more kids outside . . .’s home | 7. Family day care provider caring for 2 or more children outside of . . .’s home | 7. Family day care provider caring for 2 or more children outside of . . .’s home          |
| 8. Child in nursery/preschool                            | 8. Child in organized school-based activity (before/after school) | 8. Any other friend/neighbor/sitter/nanny/au pair                          | 8. Child care or day care center  | 8. A child care or day care center   |
| 9. Child in kindergarten, elementary or secondary school | 9. Child in kindergarten, elementary or secondary school          | <b>For child ages 0-5:</b><br>9. Nursery/preschool                         | <b>For child ages 0-5:</b><br>9. Nursery/preschool                                | <b>For child ages 0-5:</b><br>9. A nursery/preschool                                       |
| 10. Child cares for self                                 | 10. Child cares for self  | 10. Child care/day care center   | 10. Federally supported Headstart program   | 10. A federally supported Headstart program  |
| 11. . . works at home                                    | 11. . . works at home   | 11. Federally supported Headstart program                                  | 11. A non-relative such as a friend/neighbor/sitter/nanny/au pair                 | 11. A non-relative such as a friend/neighbor/sitter/nanny/au pair<br>12. Other arrangement |

|                                     |  | <b>For child age 6 and older:</b>   | <b>For child age 6 and older:</b>  | <b>For child age 6 and older:</b>  |
|-------------------------------------|--|---|--|--|
| 12. . . cares for child at work     | 12. . . . cares for child at work (in class/while job hunting)   | 9. Organized sports (including practices)<br>10. Lessons (music, art, dance, language, computer)<br>11. Clubs (boys/girls clubs, scouts, and other organizations) | 9. Organized sports, including practices<br>10. Lessons (music, art, dance, language, computer)<br>11. Clubs (boys/girls clubs, scouts, and other organizations) | 9. Organized sports, including practices<br>10. Lessons (music, art, dance, language, computer)<br>11. Clubs (boys/girls clubs, scouts, and other organizations) |
| 13. Child not born as of last month | 13. Child not born and/or . . . not guardian as of last month    | 12. Before or after school care program   | 12. Before or after school care programs   | 12. Before or after school care programs   |
| 14. . . did not work last month     | 14. . . . did not work, go to school, or look for job last month |   | 13. A non-relative such as a friend/neighbor/sitter/nanny/aupair   | 13. A non-relative such as a friend/neighbor/sitter/nanny/aupair   |
|                                     |  |   |  | 14. Other arrangement  |

Sources: For 1984-85: U.S. Census Bureau and Inter-university Consortium of Political and Social Research (ICPSR), *Survey of Income and Program Participation (SIPP) 1985 Panel Wave VI Rectangular Core and Topical Module Data (ICPSR 9176)* (Ann Arbor, MI: ICPSR, 2000), pp. C3-1–C3-2, available from: <http://www.icpsr.umich.edu/cgi/archive2.prl>, accessed December 27, 2001; for 1986-1992: U.S. Census Bureau and Inter-university Consortium of Political and Social Research (ICPSR), *Survey of Income and Program Participation (SIPP) 1986 Panel Wave III Rectangular Core and Topical Module Data (ICPSR 9319)* (Ann Arbor, MI: ICPSR, 2000), pp. B3-1– B3-2, available from: <http://www.icpsr.umich.edu/cgi/archive2.prl>, accessed December 27, 2001; U.S. Census Bureau and Inter-university Consortium of Political and Social Research (ICPSR), *Survey of Income and Program Participation (SIPP) 1986 Panel Wave VI Rectangular Core and Topical Module Data (ICPSR 9319)* (Ann Arbor, MI: ICPSR, 2001) pp. B3-4–B3-5, available from: <http://www.icpsr.umich.edu/cgi/archive2.prl>, accessed December 27, 2001; U.S. Census Bureau and Inter-university Consortium of Political and Social Research (ICPSR), *Survey of Income and Program Participation (SIPP) 1987 Panel Wave III Rectangular Core and Topical Module Data (ICPSR 9365)* (Ann Arbor, MI: ICPSR, 2000), pp. B3-1–B3-2, available from: <http://www.icpsr.umich.edu/cgi/archive2.prl>, accessed December 27, 2001; U.S. Census Bureau and Inter-university Consortium of Political and Social Research (ICPSR), *Survey of Income and Program Participation (SIPP) 1987 Panel Wave VI Rectangular Core and Topical Module Data (ICPSR 9365)* (Ann Arbor, MI: ICPSR, 2000), pp. C3-4–C3-5, available from: <http://www.icpsr.umich.edu/cgi/archive2.prl>, accessed December 27, 2001; U.S. Census Bureau and Inter-university Consortium of Political and Social Research (ICPSR), *Survey of Income and Program Participation (SIPP) 1988 Panel Wave III Rectangular Core and Topical Module Data (ICPSR 9568)* (Ann Arbor, MI: ICPSR, 2000), pp. B3-4– B3-5, available from: <http://www.icpsr.umich.edu/cgi/archive2.prl>, accessed December 27, 2001; U.S. Census Bureau and Inter-university Consortium of Political and Social Research (ICPSR), *Survey of Income and Program Participation (SIPP) 1989 Panel Wave III Rectangular Core and Topical Module Data (ICPSR 6427)* (Ann Arbor, MI: ICPSR, 2000), pp. B3-4–B3-5, available from: <http://www.icpsr.umich.edu/cgi/archive2.prl>, accessed December 27, 2001; U.S. Census Bureau and Inter-university Consortium of Political and Social Research (ICPSR), *Survey of Income and Program Participation (SIPP) 1992 Panel Wave VI Rectangular Core and Topical Module Data (ICPSR 6429)* (Ann Arbor, MI: ICPSR, 2001) pp. B2-4–B2-5, available from: <http://www.icpsr.umich.edu/cgi/archive2.prl>, accessed December 27, 2001; U.S. Census Bureau and Inter-university Consortium of Political and Social Research (ICPSR), *Survey of Income and Program Participation (SIPP) 1992 Panel Wave IX Rectangular Core and Topical Module Data (ICPSR 9365)* (Ann Arbor, MI: ICPSR, 2000), pp. 57-58, available from: <http://www.icpsr.umich.edu/cgi/archive2.prl>, accessed December 27, 2001; and for 1993–2002, U.S. Census Bureau, “Topical Module Questionnaires,” questionnaires for Child Care Module in various waves of various panels, *SIPP Design and Survey*

*Content* (Washington, DC: U.S. Census Bureau, July 22, 2005), available from: <http://www.sipp.census.gov/sipp/questionnaires.html>, accessed March 8, 2006.

*Changes in timing of the module.* Unlike the CPS and the NHES, which are conducted in the same time period every year (the CPS in October and the NHES with a constant age cutoff date of December 31), since 1984, the SIPP's child care modules have been fielded in six different seasonal time frames (see table 19).

**Table 19.**  
**Panel, Wave and Time Frame of SIPP Child Care Modules (1984–2002)**

| Panel | Wave | Time Frame          |
|-------|------|---------------------|
| 1984  | 5    | Jan. '85 - Apr. '85 |
| 1985  | 6    | Sep. '86 - Dec. '86 |
| 1986  | 3    | Oct. '86 - Dec. '86 |
|       | 6    | Sep. '87 - Dec. '87 |
| 1987  | 3    | Oct. '87 - Jan. '88 |
|       | 6    | Oct. '88 - Jan. '89 |
| 1988  | 3    | Oct. '88 - Jan. '89 |
|       | 6    | Oct. '89 - Jan. '90 |
| 1989  | 9    | Oct. '89 - Jan. '90 |
| 1990  | 3    | Oct. '90 - Jan. '91 |
|       | 6    | Oct. '91 - Jan. '92 |
| 1991  | 3    | Oct. '93 - Jan. '94 |
| 1992  | 3    | Oct. '94 - Jan. '95 |
| 1993  | 3    | Oct. '93 - Jan. '94 |
|       | 6    | Oct. '94 - Jan. '95 |
|       | 9    | Oct. '95 - Jan. '96 |
| 1996  | 4    | Apr. '97 - July '97 |
|       | 10   | Apr. '99 - July '99 |
| 2001  | 4    | Feb. '02 - May '02  |

*Sources:* U.S. Census Bureau, "Topical Module Listing Charts for the 1985–2004 Panels," various panels, *SIPP Design & Survey Content* (Washington, DC: U.S. Census Bureau, July 20, 2005), available from: [http://www.sipp.census.gov/sipp/top\\_mod/top\\_mods\\_chart.html](http://www.sipp.census.gov/sipp/top_mod/top_mods_chart.html), accessed March 8, 2006.

To examine child care trends across years, surveys ordinarily have to be conducted at about the same time of year. When a survey is conducted in different time frames from year to year, the recorded age of a child changes because the survey reference period changes. As noted above, in the SIPP the child's age is recorded as of the fourth month of the reference period. A problem occurs when the definition of a preschooler is based on chronological age alone, because the ages of children shift, whereas the enrollment and admission dates of various organized child care facilities are fixed. For example, the peak of kindergarten enrollment for the five-year-olds occurs in September because the great majority of states require children to be five years old to enroll in kindergarten. After September, the percentage of five-year-olds in



kindergarten declines each month because in each month, many of them turn six years old; and newly turned five-year-olds were not eligible for kindergarten in the prior September. Child care centers also have fixed admission dates, although they are not as clear-cut as with kindergarten.

As the Census Bureau's Kristin Smith warns: "Differences in work schedules, or the availability of other family members, organized child care facilities or family day care providers during the months of May and June may affect the comparability of the Spring 1997 data with prior data collected in the fall of each year. Therefore, comparisons of 1997 data with earlier years should be treated with caution."<sup>274</sup>

Thus, the changes in the timing of the SIPP child care modules from season to season over the years make the cross-year comparisons of the child care data unreliable. Because of the seasonal effects, age shift, and the discrepancy between a child's age at the time of school enrollment and the child's chronological age, the patterns of child care arrangements and schooling for children of the same age groups change from season to season during the same year. Therefore, surveys on child care conducted during different seasons cannot achieve consistent and comparable results, and the comparisons of the data from the surveys conducted in different seasons would not be valid.

The timing change from October–January for the 1995 SIPP to April–July for the 1997 and 1999 SIPPs further undermined the quality of the latter two surveys. As discussed earlier, the result was that the 1997 and 1999 SIPPs included a transition month (June) during which many children shifted to summer activities and programs. This unfortunate timing seems to have caused significant undercounts of children in formal settings, including child care centers, Head Start, nursery, preschool, kindergarten, and school.

According to the Census Bureau's O'Connell, the child care module was moved from wave three of the 1996 SIPP panel to wave four of the 1996 SIPP panel in order to coincide with the Work Schedule Topical Module conducted in wave four, and to accommodate expanded content on child care. Data on work schedule and child care are collected in the same wave because the work schedule data provide important information for the analysis of the child care data. When wave four of the 1996 SIPP panel was delayed because of the government shutdown,<sup>275</sup> the child care module could not be moved to another time frame because work had already been completed on the computerized instruments for data collection. As O'Connell explains, all of the available questionnaire space on wave three of the 2004 SIPP panel has

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<sup>274</sup>Kristin Smith, "Who's Minding the Kids? Child Care Arrangements: Fall 1997," *Current Population Reports*, P70-86 (Washington, DC: U.S. Census Bureau, July 2002), p. 9, available from: <http://www.census.gov/prod/2002pubs/p70-86.pdf>, accessed April 3, 2003.

<sup>275</sup>The Census Bureau originally planned to introduce the 1996 SIPP panel in January 1996. In the 1995/96 winter, however, the federal government was shut down for nearly a month as a result of the budget conflict between President Clinton and the Republican Congress. Consequentially, the Census Bureau was unable to introduce the 1996 SIPP panel on schedule, and its fielding was postponed from January to April.

already been accounted for, so the child care module will remain in wave four of that panel.<sup>276</sup> While the Census Bureau plans to avoid asking about child care during a summer month, asking questions in the spring will continue to cause a discontinuity between the child's chronological age at the time of enrollment in child care and the child's age at the time of the survey.

*Changes in survey design.* Beginning with the 1996 SIPP panel, the Census Bureau made a number of changes in how the SIPP is conducted.<sup>277</sup> According to the Census Bureau, they included:

- A larger initial sample than in previous panels, with a target of 37,000 households;
- A single 4-year panel instead of overlapping 32-month panels;
- Twelve or 13 waves instead of 8;
- The introduction of computer-assisted interviewing (CAI), which, among other improvements, permits automatic consistency checks of reported data during the interview; those checks can reduce the level of postcollection edits and imputation and thus help to maintain longitudinal consistency; and
- Oversampling of households from areas with high poverty concentrations.<sup>278</sup>

\* \* \*

We submitted a draft of this report to the Census Bureau. After reviewing the report, the bureau, through O'Connell, agreed to publish a statement in its child care reports that notes many of the comparability problems we raise (see box 3).<sup>279</sup>

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<sup>276</sup>Martin O'Connell, U.S. Census Bureau, email message to authors, February 1, 2005.

<sup>277</sup>U.S. Census Bureau, *Survey of Income and Program Participation Users' Guide*, Third Edition (Washington, DC: U.S. Census Bureau, 2001), p. 1-2, available from: <http://www.sipp.census.gov/sipp/usrguide/sipp2001.pdf>, accessed November 21, 2001.

<sup>278</sup>U.S. Census Bureau, *Survey of Income and Program Participation Users' Guide*, Third Edition (Washington, DC: U.S. Census Bureau, 2001), pp. 1-2-1-3, available from: <http://www.sipp.census.gov/sipp/usrguide/sipp2001.pdf>, accessed November 21, 2001.

<sup>279</sup>Martin O'Connell, U.S. Census Bureau, fax sent to authors, February 16, 2005.

**Box 3**  
**U.S. Census Bureau Statement on Comparability  
of 1997 SIPP and Later Child Care Data  
to  
Previous SIPP Child Care Data**

(A version of this statement was included in the 2002 SIPP child care report)\*

There are several important points to consider when comparing SIPP child care data collected in 1997 or later to SIPP child care data from previous years. Starting in 1997, child care data (collected in 1996 SIPP Panel) were collected using a computer assisted personal interview (CAPI) instrument rather than using a paper questionnaire. In addition, two important changes were made to the module to improve data collection.

First, the number of child care categories was expanded and differentiated by child's age and parent's employment status. Respondents were also allowed to answer that no regular arrangement was used. Furthermore, instead of collecting data only on the primary and secondary arrangements, the questions solicited responses on all arrangements used, emphasizing that those that were used on a *regular basis* for both preschoolers of employed and nonemployed parents. The primary arrangement is now derived from answers on the number of hours each arrangement is used each week, rather than from a direct question asking for the primary arrangement as was used in past surveys. Due to these alterations in the instrument and questionnaire design, changes in the processing and editing procedures were also required. Therefore, comparisons of data before and after 1997 should be treated with caution.

Another issue concerns the survey implementation schedule: the child care questions asked about arrangements used during January to April in 2002, after previously being conducted for many years in the Fall and then switching to the Spring in 1997. Thus, child care changes observed between surveys of different years may also reflect seasonal differences in child care use and availability of providers, such as closing of preschools and seasonal variations in school activities or sports for grade-school-age children. This should be kept in mind when comparing survey data conducted during different seasons of the year.

In addition, greater effort was made beginning with the 1996 panel to pick up contingent workers or workers with alternative work schedules, such as temporary or on-call workers, and to include them in the employed category. A greater success in capturing these workers with irregular job schedules may affect the overall responses to the child care items and possibly account for more employed workers reporting no regular arrangements, as the employment in the reference period was of a sporadic nature.

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\* Source: Martin O'Connell, chief, Family and Fertility Statistics Branch, Population Division, U.S. Census Bureau, communication to authors, February 16, 2005.

**Out-of-date reports.** *As of June 2005, the latest Census Bureau report on child care was for the 1997 SIPP, and was published in 2002 (five years later). Data for the 1999 SIPP were not published until 2003 (four years later), and no report has been issued. The report for the 2002 SIPP was not published until October 2005 (more than three years later).*

According to the Census Bureau, “the main objective of SIPP is to provide accurate and comprehensive information about the income and program participation of individuals and households in the United States, and about the principal determinants of income and program participation.”<sup>280</sup> In theory, the “SIPP data allow the government to evaluate the effectiveness of federal, state, and local programs.”<sup>281</sup> To achieve this objective, however, the data must be published in a timely manner.

The welfare reform law, which greatly increased the demand for child care and the subsidies, was enacted in 1996. And yet, the report on the 1997 child care data was published in 2002, five years after the survey was conducted. For the 1999 SIPP, the Census Bureau published detailed data tables in 2003 (four years later), but no full report. For the 2002 SIPP, the Census Bureau published its report in October 2005 (more than three years later).

According to O’Connell of the Census Bureau, two factors caused the delay in releasing the 1999 SIPP’s data. First, staff assigned to work on the 1996 panel were reassigned to the upcoming 2002 SIPP panel, creating delays in processing data. (This affected all data items collected in the 1996 SIPP panel, not just the child care data.) Second, because data from the 1996 SIPP panel were significantly different from comparable data in the CPS, an additional eighteen months were used to review the data, which further delayed its release.<sup>282</sup>

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<sup>280</sup>U.S. Census Bureau, *Survey of Income and Program Participation Users’ Guide*, Third Edition (Washington, DC: U.S. Census Bureau, 2001), p. 1-1, available from: <http://www.sipp.census.gov/sipp/usrguide/sipp2001.pdf>, accessed November 21, 2001.

<sup>281</sup>U.S. Census Bureau, *Survey of Income and Program Participation Users’ Guide*, Third Edition (Washington, DC: U.S. Census Bureau, 2001), p. 1-1, available from: <http://www.sipp.census.gov/sipp/usrguide/sipp2001.pdf>, accessed November 21, 2001.

<sup>282</sup>Martin O’Connell, U.S. Census Bureau, telephone conversation with the authors, June 7, 2005.

## 6

# Conclusion and Recommendations

Because of the wide range of problems associated with the SIPP's child care data, there should be a top-to-bottom re-examination of how child care data are collected, processed, and presented by the Census Bureau. Fundamental changes are required to bring the SIPP into alignment with other survey and administrative data sources. By documenting and elucidating these problems, we hope that we will encourage this process.

We shared this report with the Census Bureau staff and asked them how they thought a survey that seeks to accomplish the SIPP child care module's purposes should be conducted. We received the following response from the Census Bureau, through Martin O'Connell, chief of the Bureau's Fertility and Family Statistics Branch. Because of the importance and saliency of this response, we reproduce the Census Bureau's recommendations here in their entirety.

**Box 1**  
**Rethinking the Collection of Child Care Data**  
**U.S. Census Bureau (2006)**

Two general areas of consideration for improving child care surveys are operational and content. Operational issues cover the broad area of survey administration, how the survey is designed and the season of the year that the survey is in the field. Content issues cover which questions to include in surveys, how they are asked and formatted, and problems involved in collecting detailed information in omnibus surveys such as those conducted by federal agencies.

**Operational**

**Seasonality.** Child care arrangements will vary considerably throughout the year. Arrangements used and available during the school year will differ from those in the summer months. If the goal of the study is to provide information on arrangements used during the school year, then collecting data in the Fall is the optimal time for collection as the age of the child at that time of the year will more closely reflect his/her age at the beginning of the school year.

Children often are admitted to school-based programs depending on their age at the beginning of a term rather than their age after a term begins. For example, a child age 5 in August may be of age for admission into a pre-school or kindergarten program for the rest of the Fall and Spring term, but a child only turning age 5 in March or April (when SIPP child care surveys have taken place) may not be eligible for current enrollment as of the survey interview date as he or she needed to be of a minimum age at an earlier date.

However, there is still value in conducting child care surveys at different times of the year in order to obtain a more complete picture of arrangements throughout the year. One must be sure that any analysis points out the discontinuities from survey to survey and does not attempt to equate the arrangements used by a 5 year old in April with the same child care openings that a 5-year old faced in September.

**Survey context.** Just as different seasons of the year provide a different frame of reference for the analysis of arrangement data, so does the overall context of the survey that contains the child care questions. Government surveys, as well as many private surveys, are general purpose or omnibus surveys that contain numerous topics that may or may not be related to child care issues. Competing for space or time on a longitudinal survey instrument used by many federal agencies may affect the consistency in the (1) content of the questions, (2) the way the questions are asked, (3) the survey universe for the questions, and (4) the placement of the questions on the panel in terms of duration of time since the panel began.

From an analytical perspective, it is important that child care questions be included on surveys that have sufficient economic and program participation content to enable the researcher to utilize the child care data to answer policy issues.

Questions asked in a different context may yield different answers. A survey that begins and continues in length as a very detailed labor force survey with child care questions at the very end (such as SIPP) may place the respondent in a different frame of mind from one that is primarily concerned with children's issues and has only a few income questions at the very end.

Even within a child care module in a survey, the initial wording of a child care arrangements question may trigger a pre-conceived set of responses of what is meant by the phrase "child care." When asked about possible child care arrangements, the respondent may not consider school teachers, basketball coaches, art instructors, and scout leaders as child care providers, even though potential

*Martin O'Connell, chief, Fertility and Family Statistics Branch, Population Division, U.S. Census Bureau*

responses such as school attendance, sports activities, lessons, and clubs are offered to the respondent. If one really seeks to find the number of children engaging in activities that are not traditionally thought of as child care arrangements, then it may take an entirely different set of questions to correctly obtain these estimates than in a section of a questionnaire focused on child care questions.

Child care modules on longitudinal surveys may suffer from being placed on interview rounds far from the initial interview, thus producing sample losses that may create biases in the remaining sample. It is important, then, to consider the placement of the child care items both in the overall context of the survey panel, and also at the point asked within that panel.

**Administration.** Because child care data are collected in considerable detail—for example, hours in use, costs of care—it is important that the parent of the child is the primary provider of the answers. For many surveys, in order to reduce repeated attempts to contact respondents and to minimize travel time and distance, a “household proxy” often provides survey answers. While attempts are usually made to secure this information from the parent, collection of the data from people other than the child’s parent, or even the parent not actively involved in securing the child care services, may produce either erroneous answers or high levels of nonresponse to items. Every effort should be made to secure this information from the parent.

In addition, the recording of child care arrangements on a survey is often accomplished by reciting to the respondent a long list of potential providers. Different response patterns may arise if the respondent visually examines the potential list rather than listening to a long list over the telephone or even in person. Response patterns to certain arrangements may suffer if they are placed at the end of the list or if previous categories seem to capture the desired response. For example, a respondent answering that their child is in preschool may then preclude a further response that their child is in a Head Start program—they may feel that they have already answered this question in the affirmative and that a further response would be redundant. More effort should be placed on examining the shadow effects that question and category placement may have on responses.

### Content

The child care questions cover a wide variety of topics. Generally, the modules begin with a listing of the types of arrangements—sometimes the primary and sometimes all arrangements that are used. Further questions include the hours used by each child for each arrangement, and subsequent details on costs and assistance received if any. Occasionally, questions are asked about satisfaction with the arrangements, time lost from work because of failures in child care arrangements, and if any children are usually left in self-care even for a small number of hours each week. Obviously, the number of questions asked of each respondent increases geometrically with the number of children and the number of arrangements used by each child. This proves to be a very taxing amount of detailed information required from the respondent, especially if the respondent is a household proxy and is answering for someone else in the household.

**Arrangements and hours.** It is important to note that tabulations used in reports or analysis are often based on “derived” answers instead of “simple” answers. For example, many analysts create tables showing the primary arrangement. Usually, this is a derived answer by finding the arrangement used by each child for the greatest number of hours per week. Sometimes, ties in hours are produced or arrangements are given but the estimate for the number of hours used is not provided. In those cases, allocation schemes are used to impute the number of hours and then the hours are compared among the other possible arrangements—which also may be imputed. This being said, questionnaires which go this more detailed route risk higher individual nonresponse rates and may not be as accurate as an answer to a single question about the primary arrangement the respondent usually uses. One may get less detail from the single question but the quality of the single response may be better than the derived response.

**Child care costs and subsidies.** A similar situation arises in the case of child care costs. Summing the individual costs of each arrangement for each child to produce a total household expenditure,

instead of asking a simple global question of total weekly costs for all children in the family, involves aggregating many different responses, all of which have different response variation and nuances. Before asking the child care cost question, one has to determine what will be the use of the item in the ensuing analysis. The more detail that is collected, the greater the likelihood that the aggregate amounts will consist of more individually allocated components.

Asking about subsidies to child care arrangements may also be problematic. In a household population survey, people may know only what they pay, not what they do not pay. Subsidies may be in the form of vouchers but they may be also in the form of reduced rates. If a respondent pays for an arrangement, they may not know that they are receiving a reduced rate or even if they do, the actual amount. This could produce discrepancies with administrative or firm records on amounts charged and received. This problem could be compounded in the case of a household proxy answering this question. Cognitive research would have to be done to see how people interpret the meaning of subsidy or assistance. It should not be surprising if child care costs or subsidy answers reported by child care centers or institutions would differ from that reported by the respondent. If this administrative information is truly desired, more effort should focus on the use of administrative records to link the respondents and associated costs, especially in the case of people enrolled in benefit programs.

**Self-care.** Self-care arrangements may be difficult to estimate because of the sensitivity of the question—it is a reflection of parental concern and in most governmental districts there are legal issues concerning leaving children unattended. But there is the more difficult issue of identifying self-care situations or establishing a common definition. For example, does a child sitting alone in a playground constitute a self-care situation while a child playing with a friend in a playground with a park official on the premises not constitute a self-care situation? And how does the parent know if the park official is attentive or if the friend is always present? Again, more research should be placed on the formation of this question and the quality of the responses derived from the answers.

Other topics, such as asking people if they use “licensed” child care providers may yield questionable responses if a negative response may be seen on the part of the respondent as providing second class caretakers for their children.

**Subjective questions.** Questions about personal feelings about child care quality, problems with arrangements, and even time lost from work can be fairly subjective and are definitely not answerable by a household proxy. They probably do not belong in large omnibus surveys but rather in more focused surveys that have more leeway for in-depth answers requiring further explanations other than an answer that scales these responses on a one to ten basis.

### Overall Recommendations

Summarizing, several suggestions can be offered to improve the quality of answers and responses to child care questions on large federal surveys.

1. Attempt to place child care surveys in the months closest to the Fall as “age of child” issues may restrict or limit child care or schooling arrangements for periods beyond the interview month.
2. Limit the questions to those actually needed for specific programs. Reducing the number of questions on omnibus surveys which accept household proxy answers will go a long way towards improving responses.
3. Do not attempt to use child care responses as substitutes for official enrollment figures, such as in schools or Head Start programs. Program data or specialized surveys are better designed to produce these estimates.



4. Whenever possible, use the simple question approach instead of the complex question approach—this will minimize problems associated with nonresponse and reduce the variance on the responses.
5. Decide if collecting child care data for only the primary or secondary arrangement will suffice, and if the data are needed for all children or only focal children.
6. Try to incorporate the use of administrative records for program enrollment and child care costs and subsidies.
7. If there are especially important arrangements to investigate that are not usually considered as child care arrangements, construct the questionnaire to highlight those responses instead of having them placed in a long list of child care alternatives. Dissociate these questions from the context of child care arrangements to avoid confusion.

# Appendices

## **A-1. Comparison of National Child Care Surveys**

Table A-1 summarizes the major characteristics of the Current Population Survey (CPS) October Supplement on School Enrollment, the National Household Education Survey (NHES), the National Survey of America's Families (NSAF), the National Study of Child Care for Low-Income Families derived from the Community Survey (CS), and the Survey of Income and Program Participation (SIPP) Child Care Module. It shows that among the five surveys, the SIPP has many unique strengths. It is more comprehensive, more specific, and more relevant to most research on child care than are the CPS October School Enrollment Supplement or the NHES. It is conducted through in-person interviews rather than telephone interviews, as are the NSAF and the CS. (In-person interviews are thought to provide better quality information than telephone interviews or mail surveys.) The SIPP asks detailed child care questions on all children in the sampled households rather than limiting the number of children in each sampled family, as do the NHES (maximum two children), the NSAF (maximum two children), and the CS (one child). Further, the SIPP covers a relatively long period, having started in the mid-1980s. Moreover, the SIPP's Child Care Topical Module examines all available child care arrangements for children from birth to age fourteen, including who takes care of the children, where each type of arrangement takes place, how many hours each child is cared for in each arrangement, as well as whether and how much families pay for child care. By linking the module with the core survey files, researchers can obtain detailed information on the children's family structure, their socioeconomic background, and their parents' work and public assistance status.

**Table A1. A Comparison of Five Major National Surveys on Child Care**

| <b>Characteristics <sup>a</sup></b>             | <b>National Surveys on Child Care</b>  |   |  |                              |  |
|---|--|---|--|------------------------------|--|
|   | <b>Current Population Survey (CPS)</b> | <b>National Household Education Survey (NHES)</b>                                       | <b>National Survey of America's Families (NSAF)</b>  | <b>Community Survey (CS)</b> | <b>Survey of Income and Program Participation (SIPP)</b>   |
| <b>Survey institution</b>                       | U.S. Census Bureau                     | National Center on Education Statistics   | Urban Institute & Westat   | Abt Associates Inc.          | U.S. Census Bureau   |
| <b>Year of survey</b>                           | Annual, 1946–present                   | 1991, 1995, 1999, 2001, 2005 <sup>b</sup>   | 1997, 1999, 2002   | 1999/2000                    | 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1993, 1994, 1995, 1997, 1999, 2002, 2005 <sup>b</sup>  |
| <b>Timing of survey</b>                         | October                                | January to April consistently, with age cutoff date of December 31 in the previous year | February to October consistently, with separate data collected in the school year and summer | August 1999 to July 2000     | January to April (1985), September to December in (1986, 1987), October to January (1988, 1989, 1990, 1991, 1993, 1994, 1995) April to July (1997, 1999), February to May (2002) |
| <b>Interview method</b>                         | In person                              | Telephone   | Telephone/in person  | Telephone                    | In person  |
| <b>Household response rate (%) <sup>c</sup></b> | 93.6                                   | 73.3 (1995), 59.9 (2001)  | 70 (1997), 64 (1999), 53.9 (2002)  | 61.8                         | 83.8 (1993), 77.8 (1994), 73.1(1995), 79.1 (1997), 66 (1999)   |
| <b>Number of households interviewed</b>         | 46,800                                 | 45,000-60,000 <sup>d</sup>  | 44,000 (1997), 42,000 (1999), 40,000 (2002)  | 6,138 low-income families    | 19,864 (1993–1995) <sup>e</sup> , 36,800 (1997–1999) <sup>f</sup> , 36,700 (2002) <sup>g</sup>   |

**Table A1. A Comparison of Five Major National Surveys on Child Care**

| <b>Characteristics <sup>a</sup></b>                            | <b>National Surveys on Child Care</b>  |   |   |   |   |
|--|--|---|---|---|---|
|  | <b>Current Population Survey (CPS)</b> | <b>National Household Education Survey (NHES)</b>                                   | <b>National Survey of America's Families (NSAF)</b>   | <b>Community Survey (CS)</b>                          | <b>Survey of Income and Program Participation (SIPP)</b>                              |
| <b>Age of child</b>  | 3 years and older                      | 3 to 8 (1991), birth to 10 (1995), birth to grade 8 (1999), birth to 6 (2001, 2005) | Birth to 12   | Birth to 12   | Birth to 14   |
| <b>Work requirements</b>                                       | None                                   | None  | None  | Mother working or in school more than 20 hours a week | None  |
| <b>Number of children included per sample household/family</b> | All                                    | Maximum two children in a sample family   | Maximum two children, one from birth to age 5 and/or one ages 6 to 12 in a sample household | One   | All children from birth to age 14   |
| <b>Type of arrangements included</b>                           | Formal schooling                       | Nonparental care, formal schooling  | All   | Nonparental care                                      | All   |
| <b>Parent's activities while child in care</b>                 | Not collected                          | Not collected   | All circumstances (with data collected on work, job search, and school)                     | While working or in school                            | All circumstances (with data collected on work, job search, and school)               |
| <b>Required regularity of arrangement</b>                      | Currently enrolled                     | Currently scheduled at least once each week   | At least once each week during the previous month   | No specification                                      | "On a regular basis" (i.e. "at least once a month during the past month") (1997–2002) |

**Table A1. A Comparison of Five Major National Surveys on Child Care**

| Characteristics <sup>a</sup>  | National Surveys on Child Care   |   |   |  |   |
|---|--|---|---|--|---|
|   | Current Population Survey (CPS)  | National Household Education Survey (NHES)  | National Survey of America's Families (NSAF)  | Community Survey (CS)  | Survey of Income and Program Participation (SIPP)   |
| <b>Arrangements included on questionnaire for children birth to age 5</b> | Nursery<br>Kindergarten<br>Elementary school<br>(Head Start is included in either nursery or kindergarten) | Relative (including grandparents, siblings, or other relatives)<br>Nonrelatives in private home (including home child care providers, regular sitters or neighbors)<br>Head Start<br>Center-based programs (including day care center, nursery school, preschool or prekindergarten, or something else) | Head Start<br>Day/group care center, nursery, preschool, pre-kindergarten<br>Before- or after-school care program outside child's home<br>Child care or babysitter in child's home (including relative and nonrelative)<br>Child care or babysitter in someone else's home (including relative and nonrelative) | Day care center, nursery<br>Head Start center<br>Kindergarten, elementary, or junior high school<br>Lessons, clubs, sports, or similar activities<br>Unrelated to child—adult at least 18 years old<br>Unrelated to child—under 18 years old<br>Grandmother or grandfather<br>Sibling or step-sibling<br>Aunt, uncle or cousin<br>Child took care of (him/her)self<br>Other parent or step-parent<br>Other (SPECIFY) | Other parent<br>Designated parent while working or at school<br>Sibling age 15 and older<br>Sibling under 15<br>Grandparent<br>Other relative<br>Family day care provider caring for 2 or more children outside of . . . 's home<br>Center<br>Nursery/preschool<br>Head Start Program<br>Non-relative such as a friend/neighbor/sitter/nanny/aupair |

Table A1. A Comparison of Five Major National Surveys on Child Care

| Characteristics <sup>a</sup>  | National Surveys on Child Care               |  |   |  |   |
|---|--|--|---|--|---|
|   | Current Population Survey (CPS)              | National Household Education Survey (NHES)   | National Survey of America's Families (NSAF)  | Community Survey (CS)  | Survey of Income and Program Participation (SIPP)   |
| <b>Arrangements included on questionnaire for children over age 5</b> | Nursery<br>Kindergarten<br>Elementary school | Relative (including grandparents, siblings, or other relatives)<br>Nonrelatives in private home (including home child care providers, regular sitters or neighbors)<br>Head Start<br>Center-based programs (including day care center, nursery school, preschool or prekindergarten) | Before- or after-school care program<br>Child care or babysitter in child's home (including relative and nonrelative)<br>Child care or babysitter in someone else's home (including relative and nonrelative) | Day care center, nursery<br>Head Start center<br>Kindergarten, elementary, or junior high school<br>Lessons, clubs, sports, or similar activities<br>Unrelated to child—adult at least 18 years old<br>Unrelated to child—under 18 years old<br>Grandmother or grandfather<br>Sibling or step-sibling<br>Aunt, uncle or cousin<br>Child took care of (him/her)self<br>Other parent or step-parent<br>Other (SPECIFY) | Other parent<br>Designated parent while working or at school<br>Sibling age 15 and older<br>Sibling under age 15<br>Grandparent<br>Other relative<br>Family day care provider caring for 2 or more children outside of . . . 's home<br>Center<br>Organized sports<br>Lessons (music, art, dance, language, computer)<br>Clubs (boys/girls clubs, scouts, and other organizations)<br>Before or after school care programs<br>Non-relative such as a friend/neighbor/sitter/nanny/aupair) |
| <b>Children with no regular arrangement<sup>h</sup></b>               | Not collected                                | Treated as missing values  | Included in parental care   | N/A  | Kept as a separate category   |

**Table A1. A Comparison of Five Major National Surveys on Child Care**

| <b>Characteristics <sup>a</sup></b>          | <b>National Surveys on Child Care</b>  |  |  |   |   |
|--|--|--|--|---|---|
|  | <b>Current Population Survey (CPS)</b> | <b>National Household Education Survey (NHES)</b>  | <b>National Survey of America's Families (NSAF)</b>  | <b>Community Survey (CS)</b>  | <b>Survey of Income and Program Participation (SIPP)</b>  |
| <b>Definition of self-care</b>               | Not collected                          | Cared for (himself/herself) before or after school on a regular basis  | Cared for self or stayed alone with a sibling under age 13 in the last month on a regular basis  | Child took care of (him/her)self  | Cared for self (in the past month)  |
| <b>Question(s) about child care payments</b> | None                                   | (For each type of arrangement)<br>Is there any charge or fee for [the arrangement], paid either by you or someone else?<br>How much does your household pay for [the arrangement]? | Now think about all the child care arrangements and programs you use regularly for [(child1)/(child2)/all your children under age 13] while you worked, were in school or looked for work. How much did you pay for all child care arrangements and programs used in the last month? | Thinking back to (PREVIOUS MONTH) what was the total amount you paid for child care for (READ NAMES OF CHILDREN UNDER 13) in that month? Please include only the money you had to pay out of your own pocket. Don't include any payment for which you were reimbursed or which was made by an agency.<br>How many children does this payment include? | (For each type of arrangement other than care by parent or sibling) Did you or your family usually make any money payment for [this arrangement]?<br>In a typical week last month, how much did you or your family pay for [the arrangement]? |



**Table A1. A Comparison of Five Major National Surveys on Child Care**

| Characteristics <sup>a</sup>                  | National Surveys on Child Care  |   |  |   |  |
|---|---------------------------------|---|--|---|--|
|   | Current Population Survey (CPS) | National Household Education Survey (NHES)  | National Survey of America's Families (NSAF)   | Community Survey (CS)   | Survey of Income and Program Participation (SIPP)  |
| <b>Question(s) about government subsidies</b> | None                            | Do any of the following people or organizations help to pay for [the arrangement]?<br>a. A relative of (child) outside your household who provides money specifically for [the arrangement]?<br>b. a social service or welfare agency?<br>c. An employer?<br>d. Someone else?<br>Who is that? | Does anyone else pay for all or part of the cost of the care for[(CHILD1)/(CHILD2)]/any of your children under age 13]? By this I mean a government agency, your employer or someone outside your household?<br>Who or what agency helps to pay for child care?<br>[CODE ALL THAT APPLY]<br>Welfare or social services<br>Employer<br>One of the children's non-custodial parents<br>Other (specify) | Do you receive a child care subsidy or voucher for your child/any of your child?<br>Where does the subsidy come from?<br>Does your child care provider receive a direct payment from a government agency for your child care? (NAME OF AGENCY)<br>For which children (under 13) do you or your provider receive a subsidy?<br>Is [your monthly cost of child care] the amount of the copayment (NAME OF AGENCY) requires?<br>Is this amount more or less than (NAME OF AGENCY) requires you to pay? | Did anyone help you pay for all or part of the cost of any child care arrangements for (child's name)? By this I mean a government agency, an employer, a relative, or a friend.<br>Who or what agency helped pay for this arrangement?<br>MARK ALL THAT APPLY; ENTER (N) FOR NO MORE<br>(1) Government (Federal, state, or local government agency. Or welfare office)<br>(2) Child's other parent<br>(3) Employer<br>(4) Other (specify) |

*Sources:* For October CPS School Enrollment Supplement: U.S. Census Bureau, Current Population Survey Report, School Enrollment 2001 (Washington, DC: U.S. Census Bureau, 2001), available from: <http://www.census.gov/population/www/socdemo/school.html>, accessed February 7, 2002, and U.S. Census Bureau, Current Population Survey, "Source and Accuracy of Estimates for the October 1996 CPS Microdata File on School Enrollment," U.S. Census Bureau, 2000, available from <http://www.bls.census.gov/cps/school/1996/ssrcacc.htm>, accessed January 28, 2002.

For National Household Education Survey: U.S. Department of Education, Office of Educational Research and Improvement, *National Household Education Survey (NHES) User's Manual, NCES 2000-076* (Washington, DC: U.S. Department of Education, 2000), available from: <http://nces.ed.gov/pubs2000/2000076.pdf>, accessed February 7, 2002; U.S. Department of Education, Office of Educational Research and Improvement, *Characteristics of Children's Early Care and Education Programs: Data from the 1995 National Household Education Survey, NCES 98-128* (Washington, DC: U.S. Department of Education, 1997), available from: <http://nces.ed.gov/pubs98/98128.pdf>, accessed February 7, 2002; U.S. Department of Education, Office of Educational Research and Improvement, *1995 National Household Education Survey (NHES:95) Questionnaires: Screener, Early Childhood Program Participation* (Washington, DC: U.S. Department of Education, 1996), available from: [http://nces.ed.gov/nhes/pdf/quex/adulted/ae\\_95.pdf](http://nces.ed.gov/nhes/pdf/quex/adulted/ae_95.pdf), accessed February 7, 2002; U.S. Department of Education, Office of Educational Research and Improvement, *1999 National Household Education Survey (NHES:99) Questionnaires: Screener, 1999 Parent Interview* (Washington, DC: U.S. Department of Education, 2000), available from: <http://nces.ed.gov/nhes/pdf/quex/adulted/99adult.pdf>, accessed February 7, 2002; and, U.S. Department of Education, Office of Educational Research and Improvement, *An Overview of Response Rates in the National Household Education Survey: 1991, 1993, 1995, and 1996, NCES 97-948* (Washington, DC: U.S. Department of Education, 1997), available from: <http://nces.ed.gov/pubs97/97948.pdf>, accessed February 7, 2002; Mary Hagedorn, Jill Montaquila, Mary Ho Nolin, Kwang Kim, Brian Kleiner, Tiffany Waits, Christopher Chapman, and Kathryn Chandler, *National Household Education Surveys of 2001: Data File User's Manual*, Vol. 1 (Washington, DC: U.S. Department of Education, 2003), available from: <http://nces.ed.gov/pubs2003/2003079.pdf>, accessed December 15, 2005.

For National Survey of America's Families: Adam Safir, Fritz Scheuren, and Kevin Wang, *National Survey of America's Families: Survey Methods and Data Reliability, 1997 and 1999* (Washington, DC: Urban Institute, 1999), available from: <http://newfederalism.urban.org/nsaf/survey-methods.html>, accessed January 24, 2002; J. Michael Brick, Pam Broene, David Cantor, David Ferraro, Tom Hankins, Carin Rauch and Teresa Strickler *1999 NSAF Response Rates and Methods Evaluation* (Washington DC: Urban Institute, 2000), available from: [http://newfederalism.urban.org/nsaf/methodology\\_rpts/1999\\_Methodology\\_8.pdf](http://newfederalism.urban.org/nsaf/methodology_rpts/1999_Methodology_8.pdf), accessed February 4, 2002; Kevin Wang, Sarah Dipko, and Nancy Vaden-Kiernan, *1997 NSAF Questionnaire* (Washington, DC: Urban Institute, 1999), available from: [http://newfederalism.urban.org/nsaf/methodology\\_rpts/Methodology\\_12.pdf](http://newfederalism.urban.org/nsaf/methodology_rpts/Methodology_12.pdf), accessed February 4, 2002; Kevin Wang, David Cantor, Nancy Vaden-Kiernan, *1999 NSAF Questionnaire* (Washington, DC: Urban Institute, 2000), available from: [http://newfederalism.urban.org/nsaf/methodology\\_rpts/1999\\_Methodology\\_1.pdf](http://newfederalism.urban.org/nsaf/methodology_rpts/1999_Methodology_1.pdf), accessed February 4, 2002; the Urban Institute, "Snapshots of America's Families III: Tracking change 1997-2002" (Washington, DC: the Urban Institute, undated), available from: [http://www.urban.org/center/anf/snapshots\\_3.cfm](http://www.urban.org/center/anf/snapshots_3.cfm), accessed December 15, 2005; J Michael Brick, David Ferraro, Teresa Strickler, and Carin Rauch, *2002 NSAF Response Rates*, (Washington, DC: the Urban Institute, undated), available from: [http://www.urban.org/UploadedPDF/900692\\_2002\\_Methodology\\_8.pdf](http://www.urban.org/UploadedPDF/900692_2002_Methodology_8.pdf), accessed December 15, 2005; Natalie Abi-Habib, Adam Safir, Timothy Triplett, and Pat Cunningham, *2002 NSAF Questionnaire* (Washington, DC: the Urban Institute, undated), available from: [http://www.urban.org/UploadedPDF/900699\\_2002\\_Methodology\\_12.pdf](http://www.urban.org/UploadedPDF/900699_2002_Methodology_12.pdf), accessed December 15, 2005.

For the Community Survey: Nancy Burstein, Jean I. Layzer, and Kevin Cahill, *National Study of Child Care for Low-Income Families: Patterns of Child Care Use Among Low-Income Families*, "Final draft (Cambridge, Mass.: Abt Associates Inc., August 1, 2001).

For the SIPP Child Care Topical Module: U.S. Census Bureau, *Survey of Income and Program Participation Users' Guide*, Third Edition (Washington, DC: U.S. Census Bureau, 2001), available from: <http://www.sipp.census.gov/sipp/usrguide/sipp2001.pdf>, accessed November 21, 2001; U.S. Census Bureau, Daniel H. Weinberg, "The Survey of Income and Program Participation - Recent History and Future Developments," SIPP Working Paper No. 232, U.S. Census Bureau, 1999, p. 7, available from: <http://www.sipp.census.gov/sipp/workpapr/wp232.pdf>, accessed December 7, 2001, U.S. Census Bureau, *Survey of Income and Program Participation, 1996 Panel Wave 4 Child Care Topical Module Questionnaire*, (Washington, DC: U.S. Census Bureau, 2001), available from: [http://www.sipp.census.gov/sipp/top\\_mod/1996/quests/wave4/childcar.htm](http://www.sipp.census.gov/sipp/top_mod/1996/quests/wave4/childcar.htm), accessed November 21, 2001; U.S. Census Bureau, *Survey of Income and Program Participation, 2001 Panel Wave 4 Child Care Topical Module Questionnaire*, (Washington, DC: U.S. Census Bureau, undated), available from: [http://www.sipp.census.gov/sipp/top\\_mod/2001/quests/wave4/childcare.html](http://www.sipp.census.gov/sipp/top_mod/2001/quests/wave4/childcare.html), accessed December 15, 2005; and U.S. Census Bureau, "Overview of the Survey of Income and Program Participation (SIPP)" (Washington, DC: U.S. Census Bureau, undated), available from <http://www.sipp.census.gov/sipp/overview.html>, accessed December 15, 2005.

*Notes:*

<sup>a</sup>Unless otherwise indicated, the characteristics for the October CPS, the National Survey of America's Families and SIPP child care module are for the latest available survey. National Household Education Survey characteristics are for 1995, because the atypical survey in 1999 collected data on only a limited set of issues.

<sup>b</sup>Not released for public access.

<sup>c</sup>Nonresponse rates are not comparable among these surveys because the surveys differ in their treatment of households that did not answer the telephone calls. The National Household Education Survey counts unanswered sampled telephone calls in its nonresponse rate. The National Survey of America's Families does not count unanswered telephone calls as nonresponses.

<sup>d</sup>The sample sizes as the number of interviewed parents/guardians are 13,892 (1991), 14,046 (1995), 6,939 (1999) and 6,749 (2001).

<sup>e</sup>The number of the households that completed interviews in SIPP 1993 Panel Wave 1.

<sup>f</sup>The number of the households that completed interviews in SIPP 1996 Panel Wave 1.

<sup>g</sup>The number of the households that completed interviews in SIPP 2001 Panel Wave 1.

<sup>h</sup>*No regular arrangement* is not a survey question in the questionnaire. Instead, it is a computation result where there is not a single child care arrangement recorded. The response may occur if the parent did not use uniform child care arrangement(s) throughout the surveyed month, or it could result from item nonresponse or measurement error.

## 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.<sup>283</sup> 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.<sup>284</sup>

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.<sup>285</sup> For children of the same age, the children's well-being module (Wave 7 of the 2001 SIPP Panel)

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<sup>283</sup>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.

<sup>284</sup>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.

<sup>285</sup>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).<sup>286</sup>

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.<sup>287</sup> 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.<sup>288</sup>

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."<sup>289</sup> Roemer notes that measurement errors may exacerbate problems with the

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<sup>286</sup>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.

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

<sup>288</sup>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](http://www.sipp.census.gov/sipp/top_mod/2001/quests/wave7/childwellbeing.html), accessed April 6, 2006.

<sup>289</sup>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.<sup>290</sup> 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.<sup>291</sup>

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.<sup>292</sup>

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."<sup>293</sup>

**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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<sup>290</sup>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.

<sup>291</sup>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.

<sup>292</sup>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.

<sup>293</sup>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.<sup>294</sup> 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.<sup>295</sup>

Proxy responses, however, are often less complete and less accurate than those from the child’s mother.<sup>296</sup> 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.”<sup>297</sup> Similarly, Dawn Aldridge and her colleagues at Abt Associates observed “a substantial number of one-wave breaks in WIC receipt [in the SIPP].”<sup>298</sup> 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.”<sup>299</sup> Because it was unlikely that so many children would have discontinued

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<sup>294</sup>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/usguide/sipp2001.pdf>, accessed November 21, 2001.

<sup>295</sup>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.

<sup>296</sup>Martin O’Connell, U.S. Census Bureau, email message to authors, February 1, 2005.

<sup>297</sup>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.fcs.m.gov/99papers/mcgovern.pdf>, accessed April 15, 2003.

<sup>298</sup>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.

<sup>299</sup>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.<sup>300</sup> 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.<sup>301</sup> 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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<sup>300</sup>See U.S. Census Bureau, “Child Care Topical Module,” available from: [http://www.sipp.census.gov/sipp/top\\_mod/1996/quests/wave4/childcar.htm](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](http://www.sipp.census.gov/sipp/top_mod/1996/quests/wave10/childcar.htm), accessed June 8, 2005.

<sup>301</sup>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.<sup>302</sup>

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,<sup>303</sup> 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.<sup>304</sup> 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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<sup>302</sup>U.S. Census Bureau, *Survey of Income and Program Participation Users' Guide*, 3<sup>rd</sup> 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.

<sup>303</sup>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.

<sup>304</sup>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.<sup>305</sup> 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.<sup>306</sup> The 2001 SIPP panel had similar levels of bias.<sup>307</sup> This is particularly problematic because this age group contains most of the mothers with young children who might use child care.

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<sup>305</sup> 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.

<sup>306</sup> 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.

<sup>307</sup> 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               |                   | .94       |                   | .93       | .99               | .90       | .99               | .90       |
| 62-64               | .90               | .97       | .78               | .85       | .96               | 1.07      | .96               | 1.07      |
| 65-69               | .85               | .97       | .99               | .91       | .78               | .94       | .78               | .94       |
| 70-74               |                   | .99       | .85               | .95       | 1.33              | .94       | 1.33              | .94       |
| 75-79               | .94               | .98       |                   | .93       | .91               | 1.00      | .91               | 1.00      |
| 80-84               |                   | .97       | 1.07              | 1.00      | -                 | .97       | -                 | .97       |
| 85+                 | .99               | 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/workpaper/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.<sup>308</sup> 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,<sup>309</sup> 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.<sup>310</sup> (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.”<sup>311</sup>

“*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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<sup>308</sup>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.

<sup>309</sup>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.

<sup>310</sup>Patrick J. Benton, memorandum, June 24, 2005, “The SIPP Record 2005-2,” (Washington, DC: U.S. Census Bureau, 2005).

<sup>311</sup>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.”<sup>312</sup> 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.<sup>313</sup>

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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<sup>312</sup>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.

<sup>313</sup>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.<sup>314</sup> 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.<sup>315</sup> 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.<sup>316</sup>

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.<sup>317</sup> (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.<sup>318</sup>

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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<sup>314</sup>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.

<sup>315</sup>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.

<sup>316</sup>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.

<sup>317</sup>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.

<sup>318</sup>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.<sup>319</sup> 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.<sup>320</sup>

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<sup>321</sup> versus 5 percent for the 1984 panel<sup>322</sup>), 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<sup>323</sup> versus 15 percent for the 1984 panel).<sup>324</sup>

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

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<sup>319</sup>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).

<sup>320</sup>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.

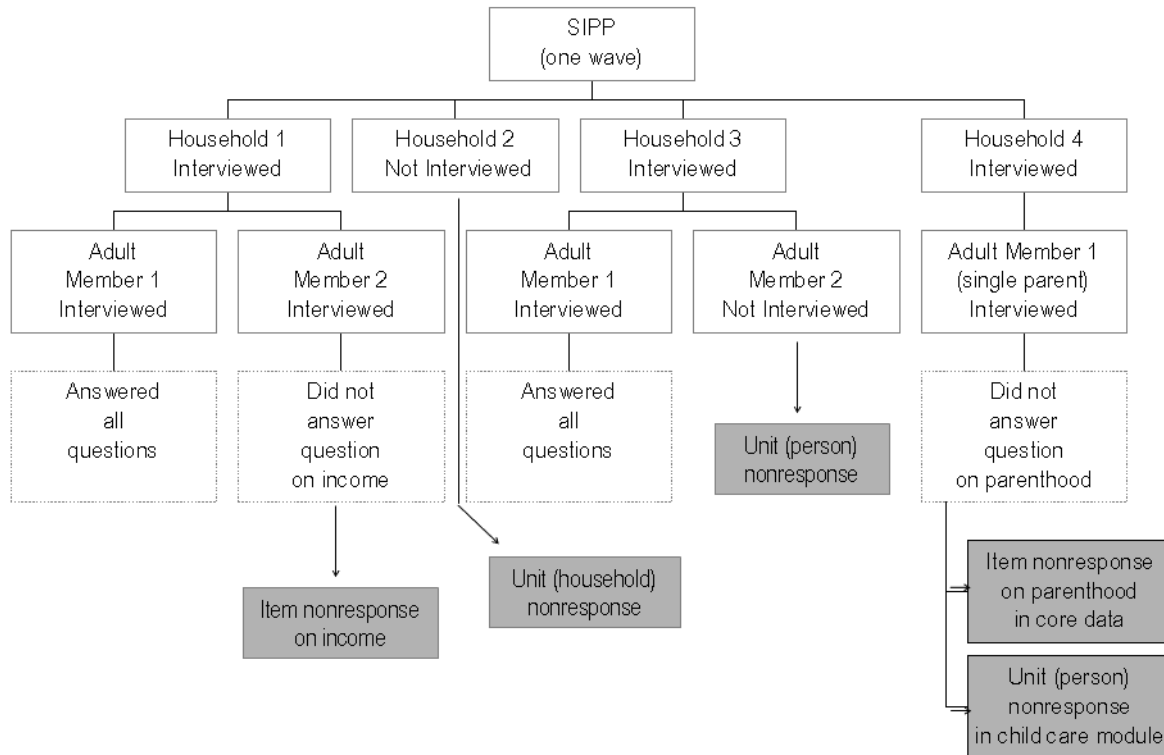
<sup>321</sup>Patrick J. Benton, memorandum, June 24, 2005, "The SIPP Record 2005-2," (Washington, DC: U.S. Census Bureau, 2005).

<sup>322</sup>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).

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

<sup>324</sup>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.<sup>325</sup> It also estimates the person nonresponse rate for the 1984 SIPP Panel at 5 percent.<sup>326</sup> Consistent with the Census Bureau estimates, our calculation from the 1996 SIPP Wave 4 core survey shows a 5 percent person nonresponse.<sup>327</sup> And our calculation from the 1996 Wave 4 child care module shows a person nonresponse rate of 5 percent.<sup>328</sup> 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).<sup>329</sup> We also estimate a 40 percent nonresponse rate for the 1999 SIPP child care module.

The SIPP tends to miss disproportionately more people from minority groups, low-income families, and those with low educational attainment—because these subgroups have disproportionately 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.”<sup>330</sup> 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 “attriters” (whom they defined as “panel nonrespondents”) of the 1987 SIPP panel.<sup>331</sup> 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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<sup>325</sup>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.

<sup>326</sup>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.

<sup>327</sup>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.

<sup>328</sup>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.

<sup>329</sup>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.

<sup>330</sup>Robert A. Moffitt 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.

<sup>331</sup>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,<sup>332</sup> 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).<sup>333</sup>

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<sup>332</sup>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).

<sup>333</sup>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.<sup>334</sup>

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,”<sup>335</sup> 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.”<sup>336</sup>

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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<sup>334</sup>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.

<sup>335</sup>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.

<sup>336</sup>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.<sup>337</sup> They concluded: “In general, imputation systems tend to assign values that are, on average, below the true value.”<sup>338</sup>

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.<sup>339</sup> 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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<sup>337</sup>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.

<sup>338</sup>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.

<sup>339</sup>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.<sup>340</sup>

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,”<sup>341</sup> 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.<sup>342</sup> For example, the monthly NIPAs’ data on welfare and food stamp reciprocity are from AFDC data provided by the Department of Health and Human Services (HHS),<sup>343</sup> and food stamp data provided by the Department of Agriculture (USDA).<sup>344</sup>

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<sup>340</sup>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.

<sup>341</sup>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](http://www.bea.doc.gov/bea/glossary/glossary_n.htm), accessed February 11, 2004.

<sup>342</sup>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.

<sup>343</sup>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.

<sup>344</sup>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.<sup>345</sup> Thus, to benchmark the income data from the 2001 SIPP panel, we also use the SPI data.<sup>346</sup> 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.<sup>347</sup> 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.<sup>348</sup>

Compared to the NIPAs from 1990 through 1996, the SIPP typically underestimated income from all major sources, missing an average of 14 percent of total annual income.<sup>349</sup> It missed 13 percent of total national income in 1990, 13 percent in 1993, and 14 percent in 1996.<sup>350</sup> 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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<sup>345</sup>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.

<sup>346</sup>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.

<sup>347</sup>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](http://www.bea.gov/bea/regional/articles/spi2004/Complete_Methodology.pdf) (accessed April 3, 2006).

<sup>348</sup>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](http://www.bea.gov/bea/regional/articles/spi2004/Complete_Methodology.pdf) (accessed April 3, 2006).

<sup>349</sup>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.

<sup>350</sup>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),<sup>351</sup> with the SIPP's estimates only about 57 percent of the NIPAs' data in 1996.<sup>352</sup> The SIPP's estimates of cash transfers were closer to the benchmark data in 1996—about 86 percent of the NIPAs' data.<sup>353</sup>

The Census Bureau has helpfully provided a similar, but less complete analysis for 2001 using SPI data.<sup>354</sup> 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.<sup>355</sup> The SIPP undercounted earnings income by about 19 percent, and transfer income by about 21 percent.<sup>356</sup> 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.<sup>357</sup> (Some of this

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<sup>351</sup>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.

<sup>352</sup>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.

<sup>353</sup>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.

<sup>354</sup>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).

<sup>355</sup>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.

<sup>356</sup>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.

<sup>357</sup>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.<sup>358</sup> 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).

<sup>358</sup>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.<sup>359</sup> 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.<sup>360</sup> The counts were much closer for government transfers, with the CPS finding about 81 percent, and the SIPP finding about 79 percent.<sup>361</sup> (Because of data incompatibility, we do not compare undercounts of property income between the SIPP and CPS.)<sup>362</sup> We also do not have separate data on pension income for 2001 and, thus, make no comparison for that income category.)

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<sup>359</sup>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.

<sup>360</sup>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.

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

<sup>362</sup>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)**

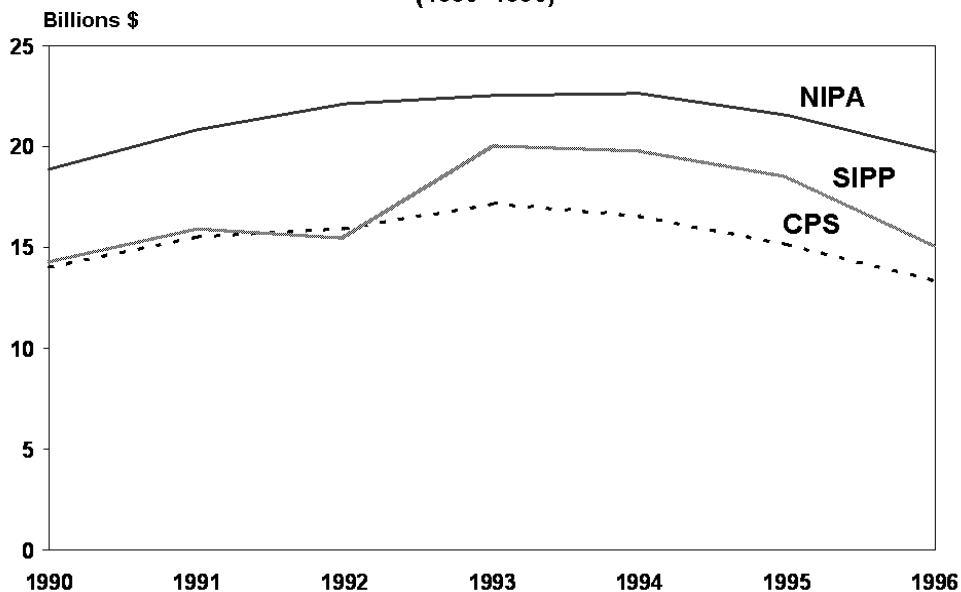
|   | CPS   | SIPP  |
|---|-------|-------|
|   | 2001  | 2001  |
| Earnings                                | 92.0% | 81.1% |
| Wage and salary                         | 96.9% | -     |
| Self-employment                         | 52.1% | -     |
| Property                                | 71.7% | 46.7% |
| 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].”<sup>363</sup> 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).

<sup>363</sup>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,<sup>364</sup> about 14 percent in 1997,<sup>365</sup> 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.<sup>366</sup> 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).<sup>367</sup>

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<sup>368</sup> between the CPS and the SIPP accounted for roughly one-third of the difference in

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<sup>364</sup>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.

<sup>365</sup>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.

<sup>366</sup>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.

<sup>367</sup>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.

<sup>368</sup>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).<sup>369</sup> 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.

<sup>369</sup>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”<sup>370</sup> at a rate of 1.7 to 1,<sup>371</sup> 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.<sup>372</sup>

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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<sup>370</sup>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.

<sup>371</sup>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.

<sup>372</sup>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).<sup>373</sup>

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 reciprocity in the SIPP. A study by the HHS Assistant Secretary for Planning and

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<sup>373</sup>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.<sup>374</sup> 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).

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<sup>374</sup>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/fssummary.htm>, accessed February 9, 2004.

### A-3. Selected Publications Using the SIPP Child Care Module as a Major Data Source

Our concerns about the accuracy of the SIPP and its child care module are not abstract. These data have been used in a variety of settings to understand current child care practices and arrangements, as well as to explicate public policy. To the extent that this paper's findings are correct, such analyses become subject to serious question. Without making any judgment about the validity or invalidity of their contents or conclusions, the following is a list of publications that we found that used the SIPP child care module as a major source of data.

Blau, David M., ed. 1991. *The Economics of Child Care*. New York: The Russell Sage Foundation.

———. 2003. "An Economic Perspective on Child Care Policy." *Journal of Population and Social Security (Population)* 1: 426–445.

——— and Janet Currie. 2003. "Preschool, Day Care, and After School Care: Who's Minding the Kids?" NBER Working Paper 10670. Cambridge, Mass: National Bureau of Economic Research, Inc.

——— and Janet Currie. 2004. "Who's Minding the Kids? Preschool, Day Care, and After School Care." In *Handbook on the Economics of Education*, ed. Eric Hanushek and Finis Welch. New York: North Holland Press. Forthcoming.

Boushey, Heather. 2003. "Who Cares? The Child Care Choices of Working Mothers." *Data Brief* (1). Washington, DC: Center for Economic and Policy Research.

———, and Joseph Wright. 2004. "Working Moms and Child Care." *Data Brief* (3). Washington, DC: Center for Economic and Policy Research.

Brandon, Peter D. 2000. "Child Care Utilization Among Working Mothers Raising Children with Disabilities." *Journal of Family and Economic Issues* 21: 343–364.

———. 2002. "Child Care Arrangements of Preschool Children in Immigrant Families in the United States." Working Paper. New York: Foundation for Child Development.

Brewster, Karin L., and Irene Padavic. 2002. "No More Kin Care? Change in Black Mothers' Reliance on Relatives for Child Care, 1977–94." *Gender & Society* 16: 546–563.

———, and Bryan Giblin. 2005. "Explaining Trends in Couples' Use of Fathers as Child Care Providers, 1985–2002." Working Paper 05-151. Tallahassee, Fla.: Florida State University, Center for Demography and Population Health.

Brush, Lorelei R. 1987. "Child Care Used by Working Women in the AFDC Population: An Analysis of the SIPP Data Base." Washington, DC: U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation, Office of Social Services Policy.

Casper, Lynne M., Mary Hawkins, and Martin O'Connell. 1994. "Who's Minding the Kids? Child Care Arrangements: Fall 1991." *Current Population Reports* P70-36. Washington, DC: U.S. Census Bureau.

———. 1995. "What Does It Cost to Mind Our Preschoolers?" *Current Population Reports* P70-52. Washington, DC: U.S. Census Bureau.

———. 1996. "Who's Minding Our Preschoolers?" *Current Population Reports* P70-53. Washington, DC: U.S. Census Bureau.

———. 1997. "My Daddy Takes Care of Me! Fathers as Care Providers." *Current Population Reports* P70-59. Washington, DC: U.S. Census Bureau.

———. 1997. "Who's Minding Our Preschoolers? Fall 1994 (Update)." *Current Population Reports* P70-62. Washington, DC: U.S. Census Bureau.

——— and Martin O'Connell. 1998. "Work, Income, the Economy, and Married Fathers as Childcare Providers." *Demography* 35: 243–250.

——— and Suzanne M. Bianchi. 2001. *Continuity and Change in the American Family*. Thousand Oaks, Calif.: SAGE Publications.

——— and Kristin Smith. 2004. "Self-Care: Why Do Parents Leave Their Children Unsupervised?" *Demography* 41 (2): 285–301.

Connelly, Rachel. 1991. "The importance of child care costs to women's decision making." In David M. Blau, ed. *The Economics of Child Care*. New York: The Russell Sage Foundation.

———. 1992. "The Future of SIPP for Analyzing Child Care and Child Support." *Journal of Economic and Social Measurement* 18: 213–230.

———. 1992. "The Effect of Child Care Costs on Married Women's Labor Force Participation." *The Review of Economics and Statistics* 74: 83–90.

———. 1992. "Self-Employment and Providing Child Care." *Demography* 29: 17–29.

——— and Jean Kimmel. 2000. "Marital Status and Full-time/Part-time Work Status in Child Care Choices: Changing the Rules of the Game." Staff Working Papers 99-58. Kalamazoo, Mich.: W.E. Upjohn Institute for Employment Research.

——— and Jean Kimmel. 2001. “The Effect of Child Care Costs on the Labor Force Participation and Welfare Reciprocity of Single Mothers: Implications for Welfare Reform.” Staff Working Papers 01-69. Kalamazoo, Mich.: W.E. Upjohn Institute for Employment Research.

——— and Jean Kimmel. 2003. “Marriage, Work for Pay, and Childcare.” In *Marriage and the Economy: Theory and Evidence from Advanced Industrial Societies*, ed. Shoshana Grossbard-Shechtman. New York: Cambridge University Press.

The Council of Economic Advisers. 1997. “The Economics of Child Care: A Report by the Council of Economic Advisers.” Washington, DC: The Council of Economic Advisers.

DeBell, Megan, Hsiao-Ye Yi, and Heidi Hartmann. 1997. “Single Mothers, Jobs and Welfare: What the Data Tell Us.” Washington, DC: Institute for Women’s Policy Research.

Ettner, Susan L. 1995. “The Impact of ‘Parental Care’ on Female Labor Supply Decisions.” *Demography* 32: 63–80.

Fields, Jason, Kristin Smith, Loretta E. Bass, and Terry Lugaila. 2001. “A Child’s Day: Home, School, and Play: Selected Indicators of Child Well-Being, 1994.” *Current Population Reports* P70-68. Washington, DC: U.S. Census Bureau.

Gonzalez, Juan, III. 1991. “Child Care and Female Labor Supply: The Influence of Quality and Price on Mothers’ Work Decisions.” Ph.D. diss., Massachusetts Institute of Technology.

Han, Wen-Jui. 1998. “The Effects of Child Care on Women’s Employment and Child Care Utilization.” Ph.D. diss., Columbia University.

Hayes, Cheryl, John Palmer, and Martha Zaslow, eds. 1990. *Who Cares for America’s Children? Child Care Policy for the 1990s*. Washington, DC: National Academy Press.

Henry, Colleen, Misha Werschkul, and Manita C. Rao. 2003. “Child Care Subsidies Promote Mothers’ Employment and Children’s Development.” Briefing Paper G714. Washington, DC: Institute for Women’s Policy Research.

Hwu, Lan-Chin. 1990. “The Effect of Child Care Costs on the Joint Determination of Married Couples’ Labor Supplies.” Ph.D. diss., Northern Illinois University.

Johnson, Julia Overturf. 2005. “Who’s Minding the Kids? Child Care Arrangements: Winter 2002.” *Current Population Reports* P70-101. Washington, DC: U.S. Census Bureau.

Kerrebrock, Nancy, and Eugene M. Lewitt. 1999. “Children in Self-Care.” *Future of Children* 9: 151.



Kimmel, Jean. 1992. *Child Care and the Employment Behavior of Single and Married Mothers*. Kalamazoo, Mich: W.E. Upjohn Institute for Employment Research.

———. 1995. “The Effectiveness of Child Care Subsidies in Encouraging the Welfare-to-Work Transition of Low-Income Single Mothers.” *American Economic Review* 85: 271–275.

———. 1998. “Child Care Costs As a Barrier to Employment for Single and Married Mothers.” *The Review of Economics and Statistics* 80: 287–299.

Klysz, Michele Ann. 1990. “The Relationship Between Demographic Characteristics and Child Care Arrangements.” Thesis, Miami University.

——— and Barbara A. Flannery. 1995. “Family Characteristics and Child Care Arrangements.” *Child and Youth Care Forum* 24: 175–194.

Lee, Sunhwa. 2004. “Women’s Work Supports, Job Retention, and Job Mobility: Child Care and Employer-Provided Health Insurance Help Women Stay on Jobs.” Research-in-Brief C359. Washington, DC: Institute for Women’s Policy Research.

Lugaila, Terry A. 2003. “A Child’s Day: 2000 (Selected Indicators of Child Well-Being).” *Current Population Reports* P70-89. Washington, DC: U.S. Census Bureau.

Maume, David J., Jr. 1991. “Child-Care Expenditures and Women’s Employment Turnover.” *Social Forces* 70: 495–508.

——— and Karen R. Mullin. 1993. “Men’s Participation in Child Care and Women’s Work Attachment.” *Social Problems* 40: 533–546.

McGroder, Sharon M. 1992. “The Usefulness of SIPP for Child Care Research and Policy.” *Journal of Economic and Social Measurement* 18: 231–252.

Michalopoulos, Charles, Philip K. Robins, and Irwin Garfinkel. 1992. “A Structural Model of Labor Supply and Child Care Demand.” *Journal of Human Resources* 27: 166–203.

National Child Care Information Center. 2004. “Number of Children in Early Care and Education Programs.” Washington, DC: U.S. Department of Health and Human Services.

Nord, Christine Winqvist, and Nicholas Zill. 1996. “Noncustodial Parents’ Participation in Their Children’s Lives: Evidence from the Survey of Income and Program Participation. Volume I, Summary of SIPP Analysis.” Report prepared for the U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. Rockville: Westat, Inc.

——— and Nicholas Zill. 1996. “Non-Custodial Parents’ Participation in Their Children’s Lives: Evidence from the Survey of Income and Program Participation, Volume II, Synthesis of

Literature, Final Report.” Report prepared for the U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation. Rockville: Westat, Inc.

O’Connell, Martin, and Amara Bachu. 1990. “Who’s Minding the Kids? Child Care Arrangements: Winter 1986–87.” *Current Population Reports* P70-20. Washington, DC: U.S. Census Bureau.

——— and Amara Bachu. 1992. “Who’s Minding the Kids? Child Care Arrangements: Fall 1988.” *Current Population Reports* P70-30. Washington, DC: U.S. Census Bureau.

Porterfield, Shirley L. 2002. “Work Choices of Mothers in Families with Children with Disabilities.” *Journal of Marriage and Family* 64: 972–981.

Raley, R. Kelly, Kathleen Mullan Harris, and Ronald R. Rindfuss. 2000. “The Quality and Comparability of Child Care Data in U.S. Surveys.” *Social Science Research* 29: 356–381.

Ribar, David C. 1991. “Child Care and the Labor Supply of Married Women.” Ph.D. diss., Brown University.

———. 1992. “Child Care and the Labor Supply of Married Women: Reduced Form Evidence.” *Journal of Human Resources* 27:134–165.

———. 1995. “A Structural Model of Child Care and the Labor Supply of Married Women.” *Journal of Labor Economics* 13: 558–597.

Rodrigues, Aida. 1990. “Child Care and Labor Force Participation Among Low and Middle-Income Urban Mothers.” Ph.D. diss., University of Massachusetts.

Ronquillo, Rebecca. 2000. “Child Care Choice: An Analysis of Factors that Influence Choice Among Respondents of the 1993-Wave 6, Survey of Income and Program Participation.” Master’s professional report, University of Texas at Austin.

Rosenbaum, Dan T., and Christopher Ruhm. 2004. “Caring for Young Children: Inequality in the Cost Burden of Child Care.” Working paper, University of North Carolina at Greensboro.

——— and Christopher Ruhm. 2005. “The Cost of Caring for Young Children.” Working paper, National Bureau of Economic Research.

Ross, Katherin E. 1999. “Labor Pains: Maternity Leave Policy and the Labor Supply and Economic Vulnerability of Recent Mothers.” Ph.D. diss., Syracuse University.

Sloan Work and Family Research Network. 2004. “Questions and Answers about Afterschool Care: a Sloan Work and Family Research Network Fact Sheet.” Boston College Graduate School of Social Work.

Smith, Kristin, Loretta E. Bass, and Jason M. Fields. 1998. "Child Well-Being: Indicators From the SIPP." Population Division Working Paper No. 24. Washington, DC: U.S. Census Bureau.

———. 2000. "Who's Minding the Kids? Child Care Arrangements: Fall 1995." *Current Population Reports P70-70*. Washington, DC: U.S. Census Bureau.

———. 2002. "Who's Minding the Kids? Child Care Arrangements: Spring 1997." *Current Population Reports P70-86*. Washington, DC: U.S. Census Bureau.

Smolensky, Eugene, and Jennifer Appleton Goolman, eds. 2003. *Working Families and Growing Kids: Caring for Children and Adolescents*. Washington, DC: National Academies Press.

Steen, Todd P. 1994. "An Analysis of Secondary Child Care Arrangements." *American Economist* 38: 82–91.

Turner, Rebecca M. 1991. "One-Third of Working Mothers of a School-Age Child Pay for Day Care." *Family Planning Perspectives* 23 (1): 46–47.

———. 1994. "One in Four Preschoolers with Working Mothers Attend Day Care Facilities." *Family Planning Perspectives* 26 (5): 238.

U.S. Census Bureau. 1987. "Who's Minding the Kids? Child Care Arrangements: Winter 1984–85." *Current Population Reports P70-9*. Washington, DC: U.S. Census Bureau.

———. 1994. "Who's Minding the Kids?." Statistical Brief SB/94-5. Washington, DC: U.S. Census Bureau.

———. 1997. "My Daddy Takes Care of Me! Fathers as Care Providers (PPL-53)." Detailed tables and documentation for P70-59. Washington, DC: U.S. Census Bureau.

———. 1997. "Who's Minding Our Preschoolers (PPL-81)." Detailed tables and documentation for P70-62. Washington, DC: U.S. Census Bureau.

———. 1998. "Historical Time Series Tables—Primary Child Care Arrangements Used for Preschoolers by Families with Employed Mothers, Selected Years, 1977 to 1994." Washington, DC: U.S. Census Bureau.

———. 2000. "Who's Minding the Kids? Child Care Arrangements: Fall 1995 (P70-70), Detailed Tables (PPL-138)." Washington, DC: U.S. Census Bureau.

———. 2000. "Child Care Costs and Arrangements: Fall 1993." Washington, DC: U.S. Census Bureau.

———. 2002. “My Daddy Takes Care of Me! Fathers as Care Providers: Fall 1994 (Detailed Tables).” Washington, DC: U.S. Census Bureau.

———. 2002. “Who’s Minding the Kids? Child Care Arrangements: Spring 1997, Detailed Tables (PPL-964).” Washington, DC: U.S. Census Bureau.

———. 2003. “A Child’s Day: 1998 (Selected Indicators of Child Well-Being), Detailed Tables.” Washington, DC: U.S. Census Bureau.

———. 2003. “A Child’s Day: 2000 (Selected Indicators of Child Well-Being), Detailed Tables.” Washington, DC: U.S. Census Bureau.

———. 2003. “Who’s Minding the Kids? Child Care Arrangements: Spring 1999, Detailed Tables (PPL-168).” Washington, DC: U.S. Census Bureau.

———. 2005. “Who’s Minding the Kids? Child Care Arrangements: Winter 2002, Detailed Tables (PPL-177).” Washington, DC: U.S. Census Bureau.

———. Undated. “Historical Time Series Tables—Weekly Child Care Costs Paid by Families with Employed Mothers: 1985–1993.” Washington, DC: U.S. Census Bureau.

U.S. House of Representatives, Ways and Means Committee. Various years. *The Green Book*. Washington, DC: U.S. Government Printing Office.

Wertheimer, Richard, Melissa Long, and Justin Jager. 2002. “Children in Working Poor Families: Update and Extensions.” Report to the Foundation for Child Development. Washington, DC: Child Trends.

———. 2003. *Poor Families in 2001: Parents Working Less and Children Continue to Lag Behind*. Washington, DC: Child Trends.