

Consumption, Income, and Material Well-Being After Welfare Reform*

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ABSTRACT

This paper investigates how material well-being has changed over time for those at the bottom of the distributions of income and consumption. We document the sharp differences between recent trends in measured income and consumption, focusing on families headed by a single mother. Since the early 1990s, income in the bottom decile has fallen by nearly 30 percent, while income has risen by more than 15 percent for the fourth and fifth deciles. The trends for consumption, on the other hand, show neither a sharp decline at low percentiles nor a large increase at higher percentiles. These patterns are evident in two income and two consumption data sources. We then examine several explanations for these differences. We argue that it is unlikely that reported income provides a consistent measuring stick in recent years due to large changes in both the sources of income and the reporting rates of the main income sources for single mothers during this period. Accounting for changes in the characteristics of single mothers can reconcile most of the income consumption difference above the bottom decile. For the bottom decile, simulations accounting for transfer under-reporting can account for much of the reported income decline. Finally, we consider how these trends translate into changes in well-being by investigating changes in disaggregated consumption and time use. Increases in spending on housing account for much of the increase in consumption in the bottom quintile, while increases in transportation spending account for much of the rise in the second quintile. Two datasets indicate modest improvement in housing quality, but the evidence is less strong at the very bottom. Although expenditures on food away from home and child care also rise, these categories are small, on average. The consumption of non-market time for those in the bottom half of the consumption distribution falls sharply indicating a loss in utility for those families if non-market time is valued above \$3/hour. Evidence from time-use surveys suggests that the lost non-market time reflects a shift away from shopping, food production, and housework.

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I. Introduction

There is a long-standing debate over how poverty and the material well-being of the disadvantaged have changed over time in the U.S. This debate has intensified in light of notable increases in income inequality in the 1970s and 1980s and, more recently, dramatic changes in tax and transfer programs that target poor families. Much research has informed this debate. One strand of this literature examines poverty rates using either income or consumption. Consumption poverty rates are generally lower than income rates when the same dollar cutoff is used for both poverty measures, but there is controversy over the trend in recent years.¹ Another strand of this literature, which does not focus on the poor, examines overall measures of inequality. This research has generated a fair amount of disagreement; while some researchers argue that overall inequality has fallen, most argue that it has risen.² Lastly, there is a body of research on the effects of the recent welfare and tax reforms which, in large part, increased assistance to those with jobs, but cut assistance to those not working. This research has noted that reforms have sharply altered the patterns of program receipt, employment, and earnings.³ Prognosticators argued that the 1996 welfare reform would lead to severe deprivation.⁴ However, within this body of research there is little consensus on how the material well-being of poor families has changed over the past decade.

This paper analyzes changes in material well-being between 1993 and 2003 for disadvantaged families.⁵ We examine trends for both income and consumption. The very distinct patterns at the bottoms of these two distributions in recent years highlight that how one measures well-being is of critical importance. We then investigate why these trends differ so sharply, and examine how these recent trends translate into changes in well-being. Our analysis focuses on single mother headed families because they constitute a large share of the poor, especially poor children, and because they can be selected based on demographic characteristics rather than being selected on having low values for an outcome of interest, such as income or consumption. In addition, using a single family type avoids the sensitivity to equivalence scales found in past work with aggregate income and consumption (Triest, 1998), and methods to handle comparisons across family type are even less established for disaggregated consumption

¹See Cutler and Katz (1991), Slesnick (1993), Triest (1998), and Jencks, Mayer and Swingle (2004a,b).

²See Cutler and Katz (1991), Johnson and Smeeding (1998), Blundell and Preston (1998), Krueger and Perri (forthcoming), Attanasio, Battistin and Ichimura (2004), Autor, Katz, and Kearney (2004), and Mayer and Jencks (1993).

³See Blank (2002) and Grogger and Karoly (2005) for reviews of this literature. See Moffitt (2001, 2003) for background and methods.

⁴Daniel Patrick Moynihan predicted that the welfare reform would lead to “children sleeping on grates, picked up in the morning frozen...”

⁵Our analyses, which focus on material well-being, do not constitute an overall evaluation of welfare reform because these reforms included other explicit goals which we do not directly address such as ending dependence on government benefits and promoting work, marriage, and two-parent families.

and time use. We report below that the prevalence of this family type is roughly constant over our time period. Recent trends in well-being for single mother families are of particular interest because substantial changes in welfare and tax policy during the 1990s, including expansions in the Earned Income Tax Credit (EITC), welfare waivers, and the passage of the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA), were associated with a dramatic fall in welfare receipt and increase in work. As we will show, these changes are most striking near the bottom of the distribution for single mothers; between 1993-1995 and 1997-2000 reported receipt of welfare or Food Stamps drops by more than 20 percentage points in four of the bottom five income deciles, while hours worked more than doubles for three of these five deciles. The emphasis of this paper will be on determining the underlying trends in well-being for disadvantaged families during this dynamic period, rather than attempting to separate out the causal effects of individual policies or macroeconomic conditions. However, we do present results for single mothers relative to comparison groups that strongly suggest that recent policy changes played an important role in the outcome changes that we observe.

The first part of this study documents the recent trends in income and consumption. For income, the trends differ remarkably at different points in the distribution for single mothers. For example, between 1993-1995 and 1997-2000, reported income in the bottom decile falls by nearly 30 percent, while reported income rises by more than 15 percent in the fourth and fifth deciles. These trends are evident in two nationally representative surveys—the Current Population Survey (CPS) and the Consumer Expenditure (CE) Survey—and are consistent with other recent studies of income (Primus, 2003; Blank and Schoeni, 2003). The trends for reported consumption, on the other hand, tell a very different story. Using data from both the CE Survey and the Panel Study of Income Dynamics (PSID), we find that consumption data show neither the sharp decline at low percentiles nor the large increases at the remaining percentiles in the bottom half of the distribution of single mothers. Rather, we find a modest rise in consumption at nearly all points in the distribution.

We then examine several explanations for these differences, including changes in the composition of the pool of single mothers, changes in income under-reporting, changes in prices of goods such as housing, and other reporting and measurement issues. We present evidence that measurement issues, which we highlighted in previous work (Meyer and Sullivan, 2003), are crucial to understanding recent trends in the well-being of the poor. We argue that it is unlikely that reported income provides a consistent measuring stick in recent years. Specifically, there were large changes in both the sources of income and the reporting rates of the main income sources for single mothers during this period. Accounting for changes in the characteristics of single mothers adjusts income changes downward but has little effect on consumption. These adjustments reconcile most of the income consumption difference above the bottom decile. For the bottom decile, simulations accounting for transfer under-reporting can account for much of the reported income decline.

The last part of this paper analyzes how material well-being has changed in recent years by looking at components of consumption as well as data on non-market time. Patterns for

components of consumption indicate that increases in spending on housing account for much of the increase in consumption in the bottom quintile, while increases in transportation spending account for much the rise in the second quintile. Although spending on food away from home and child care also rise, these categories are too small, on average, to have an important effect on changes in total consumption. Part of the increase in housing spending may reflect reduced subsidies and higher rents as a result of increased earnings for this group (more than half of those in the bottom quintile live in public or subsidized housing). However, we present evidence from the CE Survey and the American Housing Survey (AHS) that housing conditions improve modestly for this group. The consumption of non-market time for those near the bottom of the consumption distribution falls as time spent at market work grows significantly. Evidence from time use surveys suggests that this reflects a shift from shopping, food production and house work to market work. The significant drop in non-market time suggests that utility has fallen for those in the bottom half of the consumption distribution if this non-market time is valued at more than \$3/hour.

The paper is organized as follows. Section II discusses the relative merits of income and consumption as measures of material well-being. Section III summarizes research related to income and consumption trends for single mothers in recent years. In Section IV we describe the three nationally representative surveys used in our analyses of income and consumption trends—the CPS, the CE Survey and the PSID—as well as data on housing characteristics from the AHS and data from two national time use surveys. We also discuss how we define income and consumption. Section V presents the trends for both income and consumption at different points in the distributions for single mother families and compares them to those for other families. We examine the robustness of these changes in Section VI. In Section VII we explore several possible explanations for differences that arise in the changes for income and consumption. In Section VIII we examine components of consumption and measures of non-market time to provide some evidence on the degree to which changes in total consumption reflect actual changes in well-being. In Section IX we conclude.

II. Income and Consumption as Measures of Well-Being

In previous work we evaluate the merits of income and consumption as measures of well-being (Meyer and Sullivan, 2003). Conceptual arguments as to whether income or consumption is a better measure of the material well-being of the poor almost always favor consumption. For example, consumption captures permanent income, reflects the insurance value of government programs and credit markets, better accommodates illegal activity and price changes, and is more likely to reflect private and government transfers. Reporting arguments for income or consumption are more evenly split, with key arguments favoring income and other important arguments favoring consumption. Income data are easier to collect and therefore are often collected for larger samples. For most people, income is easier to report given administrative reporting and a small number of sources of income. However, for analyses of families with few resources these arguments are less valid. These families tend to have many income sources, but

a substantial fraction of their consumption spending is on food and housing. In addition, income appears to be substantially under-reported, especially for categories of income important for those with few resources.

This earlier work also provides evidence that for disadvantaged groups consumption is a better predictor of well-being than income. For example, other measures of material hardship or adverse family outcomes are more severe for those with low consumption than for those with low income, indicating that consumption does a better job of capturing well-being for disadvantaged families. Research has shown that key components of income are substantially under-reported in commonly used household surveys. Weighted micro-data from these surveys, when compared to administrative aggregates, show that government transfers and other income components are severely under-reported (Roemer, 2000). Comparisons of survey micro-data to administrative micro-data for the same individuals also indicate severe under-reporting of government transfers in survey data (Marquis and Moore, 1990). There is also some under-reporting of expenditures, but because expenditures often exceed income, we might be more concerned about over-reporting of expenditures, of which there is little evidence.

We also present strong evidence that income under-reporting and mis-measurement are particularly problematic for those with few resources such as low-educated single mothers. Expenditures for those near the bottom greatly exceed reported income. This result is evident in the percentiles of the expenditure and income distributions, and in comparisons of average expenditures and income among low-educated single mothers. These differences between expenditures and income cannot be explained with evidence of borrowing or drawing down wealth; we show that these families rarely have substantial assets or debts. We argue that the difference between income and consumption for these disadvantaged families is largely explained by the misreporting of income. Thus, our null model for these analyses (and the current paper) is that true income equals true expenditures. In other words, for the families on whom we focus—those with limited resources—saving or dissaving to compensate for fluctuations in income is minimal.

III. Past Research on Trends in Income and Consumption for Single Mother Families

A few recent papers examine income or consumption trends for single mother families. In Meyer and Sullivan (2004), we find that the level of total consumption for single mothers increases in real terms during the 1990s. Through controls for unemployment rates and the use of comparison groups, we provide evidence that these changes are largely due to recent changes in welfare and tax policy. Relative to comparison groups, there is some evidence that average consumption rises for low-educated single mothers. We also find a similar pattern at the 15th and 25th percentiles of the consumption distribution for this group. In most cases, we report a statistically significant increase in relative total consumption for single mothers between 1984-1990 and 1996-2000. Our results also show that some of these gains in consumption for single mothers occur after 1995, but these changes are smaller and in many cases not statistically significant. Because we do not examine consumption below the 15th percentile, these results do

not provide information on how reforms affected single mothers at the very bottom of the consumption distribution.

Two other papers that examine income show that the trends for income during this period differ noticeably at different points in the income distribution. Primus (2003) uses CPS data to examine recent changes in disposable income (after-tax income plus the cash value of non-cash transfers such as Food Stamps) for single mothers, focusing on changes for the bottom ten percent of the distribution. He finds substantial increases in income between 1993 and 1996 up to the 20th percentile of income. However, between 1996 and 2000 there are declines, often substantial ones, for those in the bottom 10 percentiles. Based on these data, Primus argues that welfare reform has caused income to fall for many individuals at the very bottom.

Blank and Schoeni (2003) also analyze CPS data on single parent families in the 1990s. They compare pre-tax money income in the 1992-1995 period to that in the 1997-2000 period. They suggest that income at the very bottom may be reported with substantial error and they are wary of conclusions based on observed movements in the bottom few percentiles of the distribution. They emphasize changes for the remaining part of the bottom half of the distribution of single mothers, noting that “strikingly, many poor families have increases in their income of around 30 percent.” These patterns can be seen in Figure 1 which is a reproduction of Figure 1B from Blank and Schoeni (2003). While these changes could be due to improved macroeconomic conditions, based on evidence that the income gains were most noticeable in states that implemented strong work incentives, the authors attribute the increase in income to welfare reform.

As a starting point for our analyses, in Figure 2 we report trends for a CPS sample similar to that used by Primus (2003) and Blank and Schoeni (2003). These trends show the key results from these previous studies, the decline in income at low percentiles and the large gains throughout much of the remaining bottom half of the distribution. The trend for money income for our sample of single mother families is very similar to the trend reported in Figure 1 for a sample of children without both parents present. Because many single mothers receive substantial shares of income from non-money income sources such as the EITC or Food Stamps, we also examine the trends for other measures that better approximate disposal income, or the resources individuals have available for consumption. As shown in Figure 2, the trends differ somewhat across these different definitions of income. Adding in Food Stamps reduces the gains in income in the bottom half of the distribution, while adding in income tax payments and credits increases the gains. The measures that better capture disposable income show declines in income for a wider range of percentiles at the bottom than is evident for money income. These measures also show much lower increases in income between the 10th and 60th percentiles.

IV. Data

A. Surveys

Our analyses of trends in well-being for the disadvantaged draw on income and consumption data from three nationally representative surveys: the Consumer Expenditure

Interview (CE) Survey, the March Current Population Survey (CPS), and the Panel Study of Income Dynamics (PSID). In addition, we will present recent trends for housing characteristics from both the CE Survey and the Annual Housing Survey (AHS), and data on time use from the 1992-1994 National Time Use Survey (NTUS) and the 2003 American Time Use Survey (ATUS).

Much of our analysis relies on data from the CE Survey because it is the only national survey that provides data on both income and total expenditures. The CE Survey, which is conducted by the Bureau of Labor Statistics (BLS), is a rotating panel survey of approximately 7,500 families each quarter (5,000 prior to 1999). Each family in the survey reports information on both income and expenditures from a number of different sources for up to four consecutive quarters. As explained below, we will use the expenditure data to derive a measure of consumption. The CE Survey also reports some information on the characteristics of the housing unit as well as detailed data on demographic characteristics and employment for each family member older than 14.⁶ Expenditure data are reported at the family level only. For more information on the CE Survey see Meyer and Sullivan (2003) or Bureau of Labor Statistics (1997).

The CPS is a nationally representative monthly survey of approximately 60,000 households (nearly 100,000 after 2001). The CPS is the most commonly used source of nationally representative income data and the survey is the source for official U.S. poverty statistics. We use the March CPS files that include the Annual Income Supplement data. In the March interview respondents are asked to provide detailed retrospective information including usual hours worked, weeks worked during the previous year, and income for the previous year from a variety of sources including earnings, asset income, monetary transfers, and the cash value of Food Stamps. The March CPS does not include data on expenditures.

The PSID is a panel survey that has followed a sample of families, their offspring, and coresidents annually from 1968-1997, and biennially since 1997. The survey provides detailed economic and demographic information for both families and individuals for a sample of about 7,000 families each year. The PSID collects data on a number of different income sources as well as data on food and housing expenditures at the family level.

The American Housing Survey (AHS) gathers data through personal interviews of occupants of apartments, single-family homes and mobile homes. Questions concerning housing quality, available appliances and facilities, building quality, neighborhood quality, and housing costs are included. Household members are also asked about personal characteristics such as age, gender, race, marital status, education, and income. A national sample of roughly 60,000

⁶The unit of observation in the CE Survey, a consumer unit, includes all related family members or two or more persons living together who use their income to make joint expenditure decisions. For a subset of individuals within a dwelling to be considered a separate consumer unit in the CE Survey, at least two of the three major expense categories—housing, food, and other living expenses—have to be made jointly.

housing units is conducted biennially. We use the data from the surveys from 1993 through 2003.⁷

Our time use data come from two nationally representative surveys. The NTUS is a single cross-sectional survey that was conducted for the Environmental Protection Agency by the Survey Research Center at the University of Maryland between 1992 and 1994. Survey respondents report all activities, and where they were during those activities, for the previous day. The NTUS includes 9,386 completed surveys—7,514 adult interviews and 1,872 child interviews. The NTUS also includes a limited number of demographic variables. We do not observe the marital status of the respondent, but we do know the number of adults living in the household.⁸ The ATUS, which started in 2003, is a repeated cross-sectional survey of a random sample drawn from households that have completed their final interview for the CPS. One individual is randomly chosen from each selected household, and this respondent is interviewed once about how they spent their time on the previous day. The ATUS also collects information on where the respondent was during each activity and whom they were with. ATUS data can be linked to economic and demographic information in the CPS. More than 20,000 respondents completed the ATUS survey in 2003.

B. Samples

Although we examine trends for a number of different samples, the results that follow focus on single mother families for the period between 1993 and 2003. We concentrate on this sample for several reasons. First, selecting the sample based on demographic characteristics is preferable to restricting attention to families that report limited resources, because the latter approach will systematically bias comparisons of income and consumption by conditioning on the variables under study (Meyer and Sullivan, 2003). In addition, it is easier to adjust for differences in family size within a demographic group. In fact, equivalence scale adjustments have little impact on our results for single mothers. Second, this restriction allows us to concentrate on families with children that are particularly disadvantaged. Single mother families account for about 60 percent of all families with children living in poverty. Third, tax and transfer programs that primarily target single mother families changed dramatically during the 1990s. These policy changes were associated with a dramatic fall in welfare receipt and increase in work, as we will show in the following section. This dramatic change in sources of income and time spent in the labor market has sparked much debate about how the well-being of these families has changed in recent years.⁹ Furthermore, these policy changes, which included work

⁷The AHS changed from a paper questionnaire to computer assisted interviewing between 1995 and 1997. At the same time the questionnaire changed slightly. We verify that this change does not affect the trends we report for our subsamples by examining the full sample for evidence of trend breaks around the survey change.

⁸Codebooks, data, and additional information for the NTUS are available at www.webuse.umd.edu.

⁹See Blank (2002) and Grogger and Karoly (2005) for overviews.

requirements and tax credits on formal labor market earnings, significantly increased the returns to formal work. At the same time under-reporting rates for non-labor income grew substantially. These factors suggest that there could be substantial bias in recent trends in income for single mothers.

We focus on families headed by a single woman between the ages of 18 and 54 who lives with her own children only and who has at least one of her own children under the age of 18 living with her.¹⁰ This excludes single mothers living with other related or unrelated adults unless the adult is a child of the female head. We use sample weights from each survey so that all results reported in the following section are representative of the U.S. population of primary families headed by single mothers. For comparison purposes, we also perform some analyses on samples including all single women, all women with children, all families except single mothers, as well as a sample of families with a disabled head.

It is important to note that changes in the characteristics of single mothers might bias comparisons over time. Data for a sample of all women between the ages of 18 and 54 in the CPS indicate that the fraction of these women that are single mothers does not change noticeably between 1993 and 2003. As shown in Appendix Table A1, the fraction of women that are lone single mothers—those living with their own children only—falls by 1.5 percentage points between 1993 and 2001, and then rises somewhat after 2001.¹¹ This pattern is similar to that for the broader sample of all single mothers. The fraction of women that are married with children also falls slightly in the late 1990s, indicating a more general trend of falling fertility during this period. Similarly, data from the CE Survey show very small declines in single mother and married parent families relative to other family types. Nevertheless, in many of the analyses that follow we control for a large number of observable characteristics of single mothers.

To simplify the analysis of the trends for income and consumption, we group the data into three separate periods: 1993-1995, 1997-2000, and 2001-2003. The first period begins after the end of the recession in the early 1990s, and ends prior to the passage of PRWORA legislation in 1996. The second period starts after PRWORA was implemented in most states. The final period includes data for two years after the recession of 2001.¹² Changes between the first two periods are informative about the immediate effects of welfare reform, and are less likely to be influenced by any changes in the characteristics of the pool of single mothers, which changes slowly over time. Changes between the first and third periods are informative about medium

¹⁰A woman is classified as single if she reports her marital status as never married, divorced, separated or widowed. “Own children” include blood-related sons and daughters, step children and adopted children.

¹¹The break in the downward trend in 2002 occurs at a time when several significant survey changes were implemented, including a shift to weights based on the 2000 Census as well as a significant expansion to the March CPS sample that added more than 34,000 households.

¹²Originally, we selected these periods to facilitate comparisons with previous research. Our analyses are not sensitive to the precise specification of these periods.

term effects, but are more likely to be influenced by any changes in the pool of single mothers. We also examine changes in income and consumption between earlier periods. These trends are discussed in Section VI.

The reference period for expenditures in the CE Survey is the previous three months and for income it is the previous twelve months.¹³ Thus, our first period includes data from the second quarter of 1993 survey through the first quarter of 1996 survey, the second period includes data from the second quarter of 1997 survey through the first quarter of 2001 survey, and the third includes data from the second quarter of 2001 through the first quarter of 2004. Stacking the quarterly surveys for single mothers yields 3,075 family-quarter observations in the first period, 4,470 family-quarter observations in the second period, and 4,065 family-quarter observations in the third period. Because we have multiple observations for the same family, we correct all standard errors for within household dependence (Appendix 2).

C. Measures of Income and Consumption

In the following section we present trends for both income and consumption as well as components of consumption. We examine several different measures of income, including pre-tax money income as well as other measures of spendable resources. Our measure of disposable family income includes all money income including earnings, asset income, and public money transfers for all family members. From money income, we deduct income tax liabilities including state and federal income taxes, and add tax credits such as the EITC. In addition, we add the face value of Food Stamps received by all family members.¹⁴ This income measure more accurately reflects the resources available to the family for consumption than the gross money income measure currently used to calculate official U.S. poverty figures. The calculation of after-tax income in this study varies slightly across surveys. For the PSID, we calculate tax liabilities and credits using TAXSIM (Feenberg and Coutts, 1993) and impute FICA taxes using reported labor income. In the CPS, state and federal income taxes, FICA taxes, and tax credits are imputed by the BLS using respondent income and family characteristics. Tax data in the CE Survey are based on reports from the respondent. Another reason income may differ across surveys is that the PSID and CPS impute missing values for components of income, while the CE Survey does not impute missing values for income. For this reason, we restrict our samples

¹³ Respondents in the CE Survey generally report income only in the second and fifth interviews. Income reported at the second interview is carried over to the third and fourth interviews unless a member over 13 is new to the CU, or a member of the CU that was not working at the time of the second interview is working in a subsequent interview. In these cases new values for family income are reported.

¹⁴ While Food Stamps are an in-kind transfer we include their face value in our measure of disposable income. Because transfer amounts are low, it is likely they are less than the unconstrained choice for the vast majority of all families. Whitmore (2002) indicates that Food Stamps are valued at 80 percent of face value for those whose transfer exceeds the unconstrained choice, and that Food Stamps are traded on the underground market for about 65 percent of their face value.

from the CE Survey to include only complete income reporters—excluding those with missing data for primary sources of income. About 10 to 15 percent of CE Survey respondents are classified as incomplete income reporters.

Our measures of family consumption in the CE Survey are derived from expenditure questions. Three major adjustments distinguish our measure of total consumption from the measure of total expenditures reported in the CE Survey. First, our consumption measure excludes spending on individuals or entities outside the family, such as charitable contributions and spending on gifts to non-family members. Second, consumption does not include spending that is better interpreted as an investment such as spending on education and health care and outlays for retirement including pensions and social security. Finally, reported expenditures on durables tend to be lumpy because the entire cost of new durable goods is included in current expenditures. To smooth these lumpy durable expenditures, we convert reported housing and vehicle spending to service flow equivalents for our measure of consumption. For a detailed description of how we calculate these service flows, see Meyer and Sullivan (2001). See Appendix 1 for more precise definitions of our various measures of income and consumption in each survey.

We adjust both income and consumption to express these measures on the same scale across observations with different family sizes by dividing each outcome by the appropriate poverty threshold for each family, which also converts the measures to constant dollars using the CPI-U. As explained in Section VI, the results are not sensitive to the choice of equivalence scale.

V. Trends in Income and Consumption

In this section we present trends for both income and consumption for single mothers between 1993 and 2003. We examine trends for the entire distribution of income and consumption, because trends in mean outcomes may miss important differences across parts of the distribution.¹⁵ While it is well known that welfare and tax reform were associated with increased work and decreased receipt of welfare, less emphasis has been given to the fact that these changes are most pronounced at the bottom of the income and consumption distribution. Table 1 shows that between 1993-1995 and 1997-2000 the drop in welfare caseloads and the rise in employment are most noticeable at the bottom of the income (top panel) and consumption (bottom panel) distributions. For example, reported receipt of welfare or Food Stamps drops by more than 20 percentage points in four of the bottom five income deciles, while hours worked more than doubles for three of these five deciles. Changes in welfare receipt and hours worked are much less evident in the top half of the income and consumption distributions.

We present trends from several national datasets, but focus on those from the CE Survey because with this survey we observe income and total consumption for the same families at a

¹⁵Bitler, Gelbach, and Hoynes (forthcoming) show, using experimental data, that mean impacts miss much of the effect of welfare reforms, even for narrowly defined groups of single mothers.

point in time. Figure 3 reports the percentage change in various measures of income and consumption between the 1993-1995 and 1997-2000 periods for each percentile of the distribution for that measure. These trends show sharp differences between income and consumption measures. The CE Survey income data show patterns that are remarkably similar to those for the CPS reported in Figure 2. Total consumption, however, shows neither the pronounced drop for the bottom ten percent nor the sharp increase over the 10th - 50th percentiles that one sees with income. We see slight increases in the bottom decile of consumption. For the 10th through the 50th percentiles, consumption increases by between 4 and 12 percent. The trends for food consumption also show much less variation across quantiles than is evident for income. Food consumption exhibits modest declines for the bottom half of the distribution, but changes little at higher percentiles.¹⁶

The trends for after-tax income and consumption from Figure 3 are summarized in Table 2 (Columns 1 and 4 of Panel A), where we report means by deciles. Comparing within decile trends across these two measures, we can reject the hypotheses that these trends are the same for many deciles. For example, average consumption in the bottom decile of the consumption distribution increases by 4.2 percent over the sample period, while average income in the bottom income decile falls by 29.3 percent. The difference between these changes—33.6 percentage points (Column 7)—is statistically significant.¹⁷ We can also reject that the trends are the same in the second, fourth, and fifth deciles.

It is important to note that the trends in Columns 1 and 4, and those in Figures 2 and 3, reflect changes at various points of the distribution when the observations are sorted by the material well-being measure in question. Thus, for example, a family at the 10th percentile of income is not necessarily the same family at the 10th percentile of consumption. To verify that the differences at the bottom are not due to some peculiar sorting of individuals over time we also examine the trends for average income by decile of consumption (Column 2) and vice versa (Column 3). These results show that reported income also falls noticeably between 1993-1995 and 1997-2000 for those with low consumption. The difference between the trends for average income and average consumption in the bottom consumption decile is 20.7 percentage points. The difference in trends for those in the bottom income decile is even more pronounced—average income falls by 29.3 percent while average consumption for these same families rises by 14.5 percent. By contrast, no matter how the observations are sorted, there is little difference between the trends for income and consumption in the top part of the distributions. Differences between the trends for income and consumption at the bottom are also evident for the period from 1993-

¹⁶Food spending falls at the bottom for other groups in the CE Survey as well (see Figure 4). Other data sets such as the PSID show that food consumption changes very little during this period (Figure 5). In addition, other studies using CE Interview data (Meyer and Sullivan, 2004) and CE Diary data (DeLeire and Levy, 2005) have shown that food consumption for low-educated single mothers does not fall relative to comparison groups during this period.

¹⁷See Appendix 2 for a discussion of how the bootstrapped standard errors are calculated.

1995 to 2001-2003 (Panel B). When comparing trends at the bottom of the consumption distribution to those for the bottom of the income distribution over this longer period, we can reject that the trends for income and consumption are the same for four of the bottom five deciles (Column 7).

Some of the statistics behind Figure 3 and Table 2 are reported in Appendix Table A2, including the 5th percentile and the decile cutoffs for consumption and income in each of the three periods by number of children. The numbers represent annual measures of consumption and income for the entire family. As we emphasize in earlier work, the consumption numbers at low percentiles are much larger than the corresponding income numbers. For example, for families with one child, the 5th percentile of consumption in the 1997-2000 period is 2.41 times the 5th percentile of income.¹⁸ Nevertheless, even the consumption numbers are very low—the 5th percentile of the consumption distribution for single mothers with two children in the 1993-1995 period is less than half the poverty line, and single mothers with three or more children face even greater deprivation. It is also noteworthy that there is little or no tendency for the consumption numbers to rise with family size, indicating that material well-being tends to be much worse in larger families.

The sharp differences in recent trends for income and consumption are unique to single mothers. In Figure 4 we report trends for income and consumption measures for a sample of all families except single mothers. Income for families in the bottom decile of the rest of the population does not drop sharply. Nor does income rise between the 10th - 50th percentiles. Also, unlike the trends for single mothers, the trends in Figure 4 are very similar for both income and consumption. At every percentile below the 90th changes in after-tax income plus Food Stamps are not more than 5 percentage points greater than changes in consumption. Trends in income and consumption for families with a disabled head (not reported) also fail to show the sharp differences between income and consumption that are evident for single mothers.¹⁹ Total consumption and after-tax income exhibit little change for this group. For all percentiles between the 10th and 90th, income and consumption change by no more than 7 percent. In the bottom decile, income on average rises by about 5 percent while consumption falls, but only slightly.

¹⁸Differences in the reference period in the CE Survey suggest that the differences in levels of income and consumption are understated. In the CE Survey, income is reported for the previous year, while expenditures are reported for the previous quarter. This is not of particular concern for comparing the means of these outcomes. However, because annual averages must have less variance than annualized measures over a shorter period, our consumption measures are over-dispersed relative to those for annual measures. Evidence from a sample of families that are in the CE Survey for four consecutive quarters shows that the standard deviation of an annualized measure of consumption derived from quarterly observations is 11 percent greater than the standard deviation for annual consumption derived from annual observations on consumption.

¹⁹This sample includes all families, except those headed by a single mother, whose head has not worked in the previous twelve months due to illness or disability.

The characteristics of single mothers are changing over time, and these changes may affect both income and consumption. To address this concern, we estimate quantile regressions of the following form:

$$\ln(Z_{iq}) = \beta_1 + \beta_2 1_{\{\text{year}=(1997-2000)\}} + \beta_3 1_{\{\text{year}=(2001-2003)\}} + X_{iq} \beta_4 + \epsilon_{iq} \quad (1)$$

where the dependent variable is either log consumption or log income divided by the poverty line for family i in quarter q ; $1_{\{\text{year}=(1997-2000)\}}$ and $1_{\{\text{year}=(2001-2003)\}}$ are period dummies; X_{iq} is a vector of demographic characteristics including a cubic in the age of the head, the number of children less than 18, the number of girls age 2-15, the number of boys age 2-15, education and race of the head, and region; and ϵ_{iq} is a household-quarter error term. We calculate bootstrap standard errors, resampling at the household level, rather than at the household-quarter level in order to allow for within household dependence. Columns 1 and 3 of Table 3, report estimates at various quantiles for β_2 and β_3 when no demographic controls are included ($\beta_4 = 0$). As expected, these estimates are in close agreement with those plotted in Figure 3. The estimates for the specifications including demographic controls are reported in Columns 2 and 4. Adding controls has little effect on the trend for consumption, although changes between the 1993-1995 and 2001-2003 periods shift downward somewhat. Estimates for income that account for changes in the characteristics of single mothers no longer exhibit large increases above the bottom quintile. In fact, these income trends mirror those for consumption very closely above the 15th percentile. However, the addition of demographic controls has little effect on changes in income at the bottom. Income still falls between 1993-1995 and 1997-2000 by 19 percent at the 5th percentile and by 8 percent at the 10th percentile and the former change is significant. We also estimated Equation (1) for the sample of single mothers in the CPS (not reported). Consistent with the pattern for CE income, in the CPS we find that much of the significant rise in income above the bottom decile reported in Figures 1 and 2 disappears with the addition of demographic controls. However, as in the CE Survey, we still see a sharp drop in income in the bottom decile.

Table 3 also presents estimates for changes in income and consumption relative to two comparison groups: single women without children and married mothers. These comparison groups provide an indication as to whether the changes we observe are part of a larger pattern of change for other groups due to changes in macroeconomic conditions, or other sources. In particular, for a sample including single mothers and a comparison group we estimate specifications similar to Equation 1 that also include interactions of a single mother indicator with each of the three period indicators. Columns 5 through 8 report, for various percentiles, the difference between the coefficient on this interaction with the first period and this interaction with each of the later periods. These results are consistent with the pattern for the absolute changes. At percentiles below the 25th, consumption for single mothers rises modestly, but in many cases significantly, relative to both comparison groups. At percentiles above the 25th, the change in relative consumption is very small. Changes in relative income mirror those for consumption above the 25th percentile. However, we again see noticeable differences at the bottom, where relative income falls for single mothers at the 5th and 10th percentiles, and this drop is significant for the all mothers sample. Similar quantile estimates for food consumption

(not reported) indicate that food changes very little in the bottom half of the distribution relative to both comparison groups.

If recent macroeconomic changes affect these three groups similarly, then the trends in Columns 5 through 8 suggest that recent changes in welfare and tax policy had a modest positive effect on consumption for single mothers in the bottom quartile, and a very small effect on both consumption and income at higher percentiles.²⁰ The noticeable difference between changes in relative income and consumption at the bottom is a puzzle that we will explore further in Section VII.

VI. Robustness of the Consumption and Income Changes

We find little evidence that the trends reported in Figures 2 through 4 and Tables 2 and 3 are sensitive to alternative approaches to adjusting for family size or inflation or the precise sample definition. Given the types of analyses that we perform and the narrow demographic group on which we focus, these trends are not sensitive to the choice of equivalence scale. The results do not change noticeably when consumption and income are adjusted by the scale proposed by the National Research Council (1995)²¹ rather than expressing income and consumption relative to the poverty line. The trends also are not sensitive to the nature of price adjustments. The trends reported in Section V are expressed in real terms using the CPI-U for all items. One nice feature of consumption is that one can account for changes in the relative prices of various components by adjusting major components such as food, housing, transportation, and apparel, using the respective CPI index for each component. This alternative approach has a negligible effect on the trends for total consumption and food consumption. We also verify that the trends are not sensitive to the precise definition of single mother families. As explained in Section IV, the main results are for single mothers living with their own children only. Results for a broader sample that includes single mothers with other adults present, such as a grandparent or a cohabiting partner, do not differ noticeably from those presented in Section V. In addition, the trends are not sensitive to imputation of major consumption components in the CE Survey. When we calculate the distribution of changes in consumption for a sample that excludes observations for which a major component of consumption, such as food or rent, is imputed—this accounts for about 20 percent of the sample in each period—the results do not change noticeably.

We also examined income and consumption trends for single mothers for the years from 1984 through 1992, although we do not report these trends here.²² For this earlier period, we

²⁰These three groups of women have similar wages, and this similarity is especially strong for the two groups of single women and when one conditions on educational attainment. Previous research has shown that employment for single women without children responds in an similar way to changes in aggregate unemployment as does employment for single mothers (Meyer and Rosenbaum, 2001).

²¹The number of adult equivalents is $(\text{the number of adults} + \text{the number of children} * 0.7)^{0.7}$.

²²The CE Survey has been administered quarterly since 1980. The 1982 and 1983 surveys, however, only sampled urban areas.

again see the most noticeable differences between the trends for income and consumption at the bottom of the distributions. Throughout this earlier period consumption changes very little at all points in the distribution, while food consumption falls slightly throughout the distribution. The top half of the income distribution also shows little change during this earlier period. At lower percentiles, however, income noticeably rises more than consumption.

As an additional robustness check, we examined income and consumption trends in another major dataset. We have already shown that the trends for income in the CPS are very similar to those in the CE Survey (Figures 2 and 3). Figure 5 reports the income and consumption measures from Figure 3 that are also available in the PSID. PSID food consumption exhibits little change during this period. This is similar to the pattern for food consumption in the CE Survey, although the PSID does not show declines in food consumption in the bottom half of the distribution. While the PSID does not provide data on total consumption, data are available for housing spending. Together, food and housing account for more than seventy percent of total consumption for single mothers, as we will show in Section VIII.²³ The trend for food and housing in the PSID is remarkably similar to the trend for total consumption in the CE Survey shown in Figure 3. These results show that the consumption changes are not an anomaly due to some aspect of the CE Survey. The trends for PSID income show increases over most percentiles. These trends are quite similar to those for the CPS and the CE Survey except in the bottom quintile. Other research indicates that this rise at the bottom in the PSID is due to unusually low levels of reported income in the PSID during the 1993-1995 period. Gouskova and Schoeni (2002) compare PSID and CPS income between 1970 and 2001 for many points in the distribution. They show that below the 20th percentile PSID income exceeds CPS income for the years prior to 1990. In the early 1990s, however, PSID income at low percentiles falls sharply relative to CPS income, and after 1997 PSID income at these low percentiles grows at a much faster rate than does CPS income.

VII. Reconciling the Differences at the Bottom

The results in Sections V and VI demonstrate that reported income and consumption for single mother families follow different trends at the bottom of the distribution in recent years. We see the same qualitative patterns in two income and two consumption datasets. In this section we investigate potential explanations for this difference. The permanent income hypothesis (PIH) is the standard economic explanation for differences between consumption and income at a point in time; individuals borrow or draw down assets to allow consumption to exceed income. Data on assets from the CE Survey, however, suggest that there is little intertemporal substitution of income for single mothers at the bottom of the distribution. Less than a quarter of all single mothers with responses to the asset questions in the CE Survey report

²³Housing in the PSID includes rent for renters, a service flow based on the market value of the home for owners, and a reported rental equivalent for non-homeowners that do not pay any rent. Unlike the CE housing measure, it does not include utilities. See Appendix 1 for more details.

liquid assets valued at more than \$1,500.²⁴ Among single mothers with expenditures that exceed income and who are in the bottom half of the income distribution, less than 10 percent have liquid assets exceeding \$500. Moreover, there is no evidence that single mothers with expenditures that exceed income have greater ex ante asset holdings than those with expenditures that are less than income. These descriptive statistics are consistent with previous work where we show that differences between consumption and income at the bottom cannot be explained with evidence of borrowing or drawing down wealth using data from the PSID (Meyer and Sullivan, 2003).

Measurement error is another potential explanation for differences in recent trends for income and consumption. While both income and consumption are surely measured with some error, the concern here is whether measurement error for either outcome has changed noticeably during our sample period. Previous research shows ratios of total expenditures based on CE Survey data to national aggregates based on Personal Consumption Expenditures are less than one and have declined steadily since the mid 1980s (Deaton 2005).²⁵ However, components of consumption such as rent and utilities, food at home, and vehicle purchases match more closely with aggregate data than other components of consumption, and comparisons of these components to their respective aggregates do not change significantly between 1984 and 2000 (Garner et al., 2003).²⁶ These components account for a significant fraction of total consumption for single mothers, particularly those at the bottom. Food at home, housing, and transportation together account for about three-quarters of total consumption for those in the bottom quintile, and this share does not change noticeably over time (see Table 7).

Two recent trends indicate that income measurement error might be of particular concern for single mothers in recent years: increasingly high under-reporting rates for welfare income and a noticeable shift from welfare income to labor market earnings. Table 4 shows AFDC/TANF and Food Stamp under-reporting rates calculated by dividing weighted survey reports by administrative totals. In 1993 15 percent of cash welfare dollars were not reported in the CE survey, but by 2000 the share not reported had more than tripled to 53 percent. Under-reporting rates for Food Stamps also rose noticeably during this period. Significant increases in under-reporting rates for welfare income are also evident in the CPS.²⁷ Table 5, which reports the dollar amounts and shares represented by the main income sources for each decile of the

²⁴CE Survey respondents only report asset information in the fifth interview. Other studies that use different datasets also show that liquid asset holdings are small among single mothers (Sullivan, 2006).

²⁵Given that consumption significantly exceeds income at the bottoms of the distributions (Table A2), under-reporting of income is of greater concern than under-reporting of consumption.

²⁶Garner et al. (2003) and Deaton (2005) are not directly applicable to our analyses because their studies use the CE integrated data, which combine the Interview and Diary surveys, whereas we use the Interview survey exclusively.

²⁷For additional evidence on income under-reporting see Marquis and Moore (1990), Coder and Scoon-Rogers (1996), Roemer (2000).

income distribution, demonstrates why under-reporting might lead to significant bias, particularly at the bottom. First, the share of reported income from AFDC/TANF and Food Stamps in the bottom income decile is substantial, accounting for about two-thirds of income in the bottom quintile. Second, reported welfare income as a share of pre-tax income, falls substantially from 0.63 to 0.34 between 1993-1995 and 1997-2000, as single mothers shift from welfare income to formal labor market earnings.

There is also evidence that reporting rates for earnings have changed for single mothers. In an earlier paper (Meyer and Sullivan 2003, pp. 1197-1198) we argued that unusually low hourly wages calculated by dividing reported earnings by reported hours are an indicator of earnings under-reporting (or possibly hours over-reporting). We examined the fraction of people reporting implied hourly wages below the minimum wage, excluding those working in uncovered occupations. Expanding this analysis, we examine whether there is evidence that earnings under-reporting changes over time. Comparing CPS data for 1993-1995 and 1997-2000, we find that the fraction of single mothers reporting wages below the federal minimum falls from 29.1 percent to 22.6 percent, a statistically significant drop. At the same time, the fraction for those besides single mothers with a sub-minimum wage rises from 3.9 to 4.2. This finding is consistent with less under-reporting of earnings by single mothers in recent years.

The potential effect of changes in under-reporting and income sources on recent income trends is unclear. On the one hand, given that welfare and Food Stamps account for a large fraction of income, sharp increases in under-reporting of transfer income could lead to a significant downward bias in changes in income. Moreover, because most of the under-reporting is due to a failure to report receipt at all,²⁸ not reporting welfare could make the income of non-reporting recipients appear extremely low. If the increased transfer under-reporting is disproportionately among those with low reported income, then it would seem that changes in reporting have the potential to explain the differences between income and consumption at the very bottom. On the other hand, despite the tripling of the under-reporting rate, the number of dollars not reported rose slowly between 1993 and 2000, as one can calculate from Table 4. Thus, it is possible that declining true receipt could reverse much of the effect of a lower reporting rate. In addition, high rates of under-reporting of welfare income could bias income trends upward as labor market earnings replace welfare income, because this change in income sources represents a shift from a source that is significantly under-reported to one that is typically well-reported (Roemer, 2000).

Suggestive evidence that there is a potential problem with under-reporting of government transfers in the bottom income decile comes from Table 1. In all three periods, the fraction of families reporting AFDC/TANF or Food Stamps is lower in the bottom decile than the second decile. This pattern is sharply different from that seen for the consumption deciles where reported transfer receipt is higher in the bottom decile than in the other deciles in all three

²⁸See Moore, Marquis and Bogen (1996).

periods. In fact, transfer receipt rises monotonically as one moves from the higher to lower consumption deciles.

To determine the potential effect of the sharp increase in under-reporting rates of welfare income on trends in reported income, we examine trends for measures of income that are adjusted for changes in the under-reporting of transfers over time. For those who have reported expenditures that exceed income, but who report no welfare income, we impute welfare income equal to the minimum of the welfare income for which a mother appears eligible and the difference between reported expenditures and reported income. Welfare income is allocated to single mothers starting with those with the lowest expenditures (in a separate imputation we allocate by income) until the total amount allocated equals the aggregate amount not reported based on the comparisons to aggregates for that year as reported in Table 4. Specifically, let E be reported expenditures, Y_r be reported income, Y_a be adjusted income, W_r be reported welfare income, W_a be adjusted welfare income, and W_e be welfare income for which an individual is eligible based on state rules. Then

$$Y_a = \begin{cases} Y_r & \text{if } W_r > 0 \text{ or } E < Y_r \\ Y_r + W_a & \text{if } W_r = 0 \text{ and } E > Y_r \end{cases} \quad (2)$$

where $W_a = \min(W_e, E - Y_r)$. A full description of the methodology for this simulation is provided in Appendix 3. The results from this simulation are reported in Columns 2 and 3 of Table 6. For comparison, the results from Table 2 for the changes in mean income by decile of income are reported again in Panel A, Column 1 of Table 6. The trends for the second decile and above mirror those for the non-imputed measure. However, accounting for under-reporting, as described above, raises the ratio of means for the bottom decile from 0.707 to 0.884. We should note that because we are adjusting for under-reporting in both periods, the changes in mean income from the adjustment do not need to go in this direction. When imputed welfare income is allocated to those with the lowest reported income first (Column 3), the entire drop in income in the bottom decile disappears. The trend for imputed income in the bottom decile in this simulation is very similar to the change for consumption reported in Table 2. Quantile estimates reported in Table 3 that control for demographic characteristics indicate that income falls by 19 percent and 7.9 percent at the 5th and 10th percentiles respectively. Analogous quantile estimates for imputed income in Panel B of Table 6 indicate that the change in income ranges between -3.7 percent and zero at the 5th percentile and between 2.5 and 4.6 percent at the 10th percentile, depending on whether imputed income is allocated by expenditures or income. Moreover, none of these quantile estimates for imputed income are significantly different from zero.

The trends for our simulated income measure indicate that most of the decline in income in the bottom decile after welfare reform could be due to the rise in under-reporting of transfers. A drawback to our approach is that we rely on very simple imputation rules. To improve these rules we would need administrative micro-data that could be matched to our survey data. Nevertheless, given the evidence of large increases in under-reporting rates of transfer income

and significant changes in major income sources, it is unlikely that reported income provides a consistent measuring stick for single mothers near the bottom of the distribution during the 1990s.

VIII. Disaggregated Consumption and Non-market Time

To determine how these recent trends translate into changes in material well-being we examine components of consumption and data on non-market time. Unlike income, consumption data can be disaggregated into its components in order to explore more fully the relationship between changes in consumption and changes in material well-being. For example, analyses of the components of consumption can shed light on the degree to which total consumption changes are the result of increased work expenses.²⁹ These analyses will provide evidence on whether recent increases in consumption among single mothers reflect improved well-being.³⁰

As shown in Table 7, which reports shares for various components of consumption for both periods, many of the changes in these shares seem consistent with the trend toward increased work for single mothers during this time. Food at home falls while transportation spending increases for every decile of the consumption distribution. Over this same period, food away from home and child expenses also increase,³¹ but these components account for only a small fraction of total consumption. In the bottom five deciles, spending on food away from home averages about 3 percent of consumption and child care averages about 2 percent of consumption. Thus, even substantial percentage increases in these categories of spending do not have a very important effect on changes in total consumption. Changes in transportation spending are more important. While there is little change in the bottom decile, for the second through fifth deciles the average share for transportation rises from 10.0 to 13.4 percent.

We can summarize the contribution of various components of consumption to changes in the total in a more orderly way. Using consumption shares we decompose the change in total consumption into its major components in order to determine which components have had the

²⁹Another advantage of looking at the components of consumption is that we can discern, in part, whether changes in total consumption reflect changes in the relative prices of different components. As discussed in Section VI, adjusting major components of consumption by their respective CPI does not affect our consumption trends.

³⁰Research that considers different outcome measures suggests that material well-being among the disadvantaged has changed little or improved slightly in recent years. Sullivan, Turner, and Danziger (2005) show that the prevalence of material hardships falls insignificantly between 1997 and 2003 for a sample of single mothers originally on welfare. Rates of food pantry use and gifts of food from others reported in Winship and Jencks (2004) do not suggest that there has been increased hardship among the poor. However, without data on any changes in the supply of assistance, this evidence is not conclusive.

³¹Deleire and Levy (2005) also report a shift from food at home to food away from home among single mothers during the 1990s.

largest impact on changes in the total.³² Figure 6 shows the overall change in consumption for each decile, as well as the contribution to the overall change from various components of consumption. We see that food falls in the bottom decile, but total consumption does not fall because housing goes up sharply. Overall, housing pulls total consumption up sharply in the bottom two deciles, while increases in transportation expenditures account for much of the increase in total consumption for deciles two through four, and to a lesser extent for higher deciles.

This decomposition demonstrates that an analysis of changes in total consumption alone may result in misleading conclusions about changes in well-being. For example, in the second decile consumption increases by 9.3 percent, but this increase may not reflect improvements in material well-being if the increase is driven by increases in transportation spending that is related to work. A substantial share of this increase in transportation spending is probably work related. The difference in average transportation shares between those with substantial work hours (more than 500 hours/year) and those with lower hours or who do not work at all averages between 3 and 4 percent in the bottom five deciles. Given that the fraction with substantial work hours increased by about 25 percentage points in the bottom half of the consumption distribution after welfare reform, about one-third of the increase in transportation spending, or over 1.4 percent consumption, may be due to increased work.³³

This decomposition also indicates the importance of increases in housing spending. However, increases in housing spending may not indicate improved living conditions if greater out-of-pocket spending on housing is a result of reduced housing subsidies as earnings rise. Understanding housing trends is particularly important because housing is the largest category of consumption for single mothers. As indicated in Table 7, aside from the bottom decile, housing accounts for at least 40 percent of measured consumption. Even these statistics are biased downward because we do not impute a value for the part of public or subsidized housing that is not paid for by the recipient.

Given the increase in housing consumption, particularly in the bottom two deciles, we examine whether the increase reflects an improvement in well-being for these families. Table 8 reports a number of characteristics of housing spending from the CE Survey. A large share of single mothers live in public or subsidized housing as can be seen in Panel A, and this fraction has increased in recent years, particularly at the bottom of the consumption distribution. Rates of home ownership are fairly low, though they have risen over time as reported in Panel B. Much of the increase in housing spending reflects higher rental payments, which rose by more than twenty

³²Our decomposition weights the percentage change in a given consumption category by its average share over the two periods. Any residual from this decomposition is added to the category “other”.

³³The change in total consumption that results from increased work is slightly larger because there are other work expenses included in categories such as clothing, child care, and food away from home. However, these components are much smaller than transportation or change little, as shown in Table 7 or Figure 6.

percent for those in the bottom three deciles for those in public or subsidizing housing or the bottom two deciles for those in private housing between 1993-1995 and 1997-2000 (Panels C and D of Table 8). The rent increases tend to be somewhat larger for those in public housing, suggesting that these families may have qualified for smaller rent subsidies as their earnings increased, resulting in increased out-of-pocket rental expenses.

To discern how much of this increase in rents reflects improved living quarters we turn to data on housing characteristics from two datasets. The CE Survey provides data on the number of rooms in the unit and the presence of major appliances. We look at major appliances that are amenities often included in rental units and that may reflect the quality of the unit. The trends for these characteristics, which are presented separately by decile of the consumption distribution in Table 9, provide some evidence that housing quality has improved in recent years for those at the bottom—the group whose rise in consumption is driven by increases in housing. Between 1993-1995 and 1997-2000 the number of rooms and number of bedrooms (adjusted for family size) fall somewhat for those in the bottom decile, and then rises after 2000. However, these changes are not significant. We do find significant improvements between 1993-1995 and 2000-2003 in the bottom decile for the number of bathrooms as well as for the likelihood of having air conditioning, a clothes washer, and a dryer. Overall, the evidence from the CE Survey suggests that the quality of housing for those in the bottom half of the consumption distribution has risen.

Additional evidence on housing quality is available in the American Housing Survey (AHS), which also has the advantage of a larger sample size than the CE Survey. Although we cannot examine housing conditions in the AHS at different points of the consumption distribution, we can examine these characteristics for the worst off single mothers by looking at those without a high school degree. These low-educated single mothers are over-represented in the bottom of the consumption distribution in the CE Survey; more than three-quarters are located in the bottom half of the distribution. The trends from the AHS are summarized in Table 10. As with those from the CE Survey, the point estimates suggest slight improvement in housing conditions, although many of the changes are not statistically significant. Between 1993-1995 and 1997-1999, we see significant increases in the fraction of units with a dryer or air conditioning. Looking at outcomes that we expect to affect disproportionately the worst off among this already disadvantaged group of single mothers, we see declines in the frequency of inoperative toilets and leaks in the roof, and the latter decrease is significant. Improvements are somewhat more noticeable when comparing the 1993-1995 and 2001-2003 periods. Thus, while housing spending does rise, it appears that single mothers with low consumption are receiving more or better housing on average for their money. Overall, the evidence from disaggregated consumption, particularly transportation and housing, suggests that the increases in well-being are only slightly smaller than that suggested by aggregate consumption.

While the trends discussed above indicate that consumption rises somewhat for single mothers during the 1990s, non-market time falls sharply for this group as shown in Table 1, especially for those in the low deciles of the distributions of income and consumption. How one evaluates this loss of non-market time is crucial to any utility-based analysis of the effects of welfare reform on material well-being. To evaluate recent changes in well-being for single

mothers, we calculate the ratio of changes in mean annual consumption to changes in average hours worked per year. While well-being reflects disaggregated consumption and time use, as well as other indicators, for simplicity let utility of single mothers be $U(C,L)$, where C is consumption of goods and L is non-market time. A representative single mother's consumption bundle goes from (C_0, L_0) before welfare reform to (C_1, L_1) after, with $C_1 > C_0$, but $L_1 < L_0$. We calculate $w^* = (C_1 - C_0)/(L_0 - L_1)$. Then w^* is the per hour valuation of the loss in non-market time needed to make the representative single mother indifferent about the consumption bundle change. If the mother values non-market time greater than w^* she is worse off after welfare reform.³⁴

These non-market time values are reported in Table 11 for each of the bottom five deciles of the consumption and income distributions. These results indicate that if single mothers value non-market time on the margin at a substantial fraction of the market wage, those in the bottom half of the distribution are likely to be worse off after welfare reform than before. For example, a single mother in the bottom decile of the consumption distribution would have to value her non-market time at \$1.21 per hour in order to be indifferent between her bundle of consumption and non-market time in 1993-1995 as compared to her bundle of consumption and non-market time in 1997-2000. The interpretation of these results depends on how one values non-market time. On the one hand, if this time is valued near the market wage then these results suggest many single mothers are worse off. On the other hand, if little value is given to the non-market time of single mothers (as implicitly was the case in some political debates over welfare reform which emphasized the importance of work), recent consumption trends suggest that single mothers are better off.

To explore further the nature of the reduction in non-market time among single mothers, we examine data on time use from two national surveys. The patterns for hours per week spent in market work, non-market work, and non-work time for single mothers and comparison groups are presented in Table 12.³⁵ These data indicate that the increase in time spent in market work has been associated with declines in non-market work rather than declines in non-work time. There is evidence of less time spent in food preparation, housework, and shopping. The drop in time spent shopping and obtaining goods and services is statistically significant both in absolute terms and

³⁴More precisely, $U(C_1, L_1)$ must be less than $U(C_0, L_0)$ if $(\partial U/\partial L)/(\partial U/\partial C)$ evaluated at (C_0, L_0) is greater than w^* . This condition is sufficient, but not necessary for a single mother to be worse off after welfare reform. Since the marginal rate of substitution rises as L declines, even if $(\partial U/\partial L)/(\partial U/\partial C)$ is slightly below w^* at (C_0, L_0) the discrete change may make the single mother worse off. Similarly, $(\partial U/\partial L)/(\partial U/\partial C)$ evaluated at (C_1, L_1) being greater than w^* is a necessary condition for a representative single mother to be worse off after welfare reform.

³⁵The 1992-1994 NTUS does not include income or consumption data, so we cannot examine time use patterns for those at the bottom of the distribution. Also, because of small sample sizes, we do not restrict the sample to low educated single mothers. Our time use categories follow Aguiar and Hurst (2005b). We thank Erik Hurst for making available programs for processing the time use data.

relative to two comparison groups. This decline in shopping time raises the question as to whether increases in expenditures overstate changes in true consumption, because, for example, single mothers spend less time shopping for bargains. Recent research has shown that market expenditures can be a poor proxy for consumption if individuals substitute market expenditures for time (Aguiar and Hurst, 2005a).

IX. Conclusions

Trends in income and consumption tell very different stories about what has happened to the well-being of disadvantaged families in recent years. On the one hand, income data suggest a noticeable fall for a subgroup of single mothers with incomes well below the poverty line, while income increases sharply for single mothers at higher points in the distribution. On the other hand, consumption data suggest that the material circumstances of single mother families improved modestly between 1993 and 2003 at most points in the distribution. We argue that consumption data better reflect recent changes in well-being. Measurement issues indicate that there is reason to be skeptical about recent trends in income for this group. First, accounting for changes in the characteristics of single mother families eliminates most of the increase in income above the bottom decile. Second, under-reporting of mean-tested transfer income—an important source of income for those at the bottom of the distribution—has increased noticeably in recent years in both the CPS and the CE Survey. Simulations indicate that the rise in under-reporting rates could potentially explain a substantial fraction of the drop in income in the bottom decile. Third, there were significant shifts in sources of income for single mothers from sources that are typically under-reported, such as transfer income, or unreported, such as informal labor income, to sources that tend to be well-reported such as formal labor market earnings.

Our analysis of the components of consumption suggests a complicated picture of changes for low-resource single mothers. Aggregate consumption is an insufficient summary of their circumstances. Increased spending on housing accounts for much of the increase in consumption in the bottom quintile. While part of the increase in housing spending may reflect reduced subsidies and higher rents as a result of increased earnings, we present evidence that housing conditions do improve modestly for this group. Some of the increases in consumption are potentially the result of the increased market work by single mothers during the 1990s; expenditures on transportation, food away from home, and child care all rise, although the latter two categories are, on average, too small to have an important effect on changes in total consumption. Overall, the evidence from disaggregated consumption, particularly transportation and housing, suggests that the increases in well-being are slightly smaller than that suggested by aggregate consumption. The consumption of non-market time for those near the bottom of the consumption distribution falls sharply; time spent at market work more than doubles for those in the bottom consumption quartile between 1993 and 2003. Evidence from time-use surveys suggests that this change reflects a shift from shopping, food preparation and other housework to market work. If single mothers value this lost non-market time at more than \$3 per hour, most of those in the bottom half of the consumption or income distribution are worse off after 1996 than they were before welfare reform. It is important to note that this drop in utility does not arise

from increases in material deprivation as some observers had predicted and some analysts have concluded. Rather, this drop results from the fact that increases in consumption do not sufficiently offset reductions in non-market time.

Our analyses should inform studies of the well-being of disadvantaged families. First, we have demonstrated that how one measures well-being is of critical importance. We show sharp differences between consumption and income measures and likely biases in income measures. Second, we show how standard measures of inequality may give a very narrow and potentially biased view of the circumstances of the poor. Our analysis shows how one can go beyond Gini coefficients and other summary measures of income or consumption distributions. There are interesting changes throughout the distribution of resources with different explanations for differences between income and consumption at different percentiles. Lastly, going beyond aggregate income or consumption, we have also shown how the use of disaggregated measures, non-market time, and time use may better capture well-being when work and consumption bundles change.

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Appendix 1 Data Description

Money income: This pre-tax income measure includes all money income as defined by the U.S. Census Bureau, including: wages, salary, and self-employment income; Social Security; Supplemental Security Income; public assistance or welfare payments; investment income, income from estates or trusts, and net rental income; veterans' payments; unemployment insurance; workers' compensation; pension income; alimony or child support; regular contributions from persons not living in the household; and other periodic income. This is measured at the family (CPS and PSID) or consumer unit (CE Survey) level.

After-tax family income: This is our standard measure of disposable income. It is defined as money income plus the face value of Food Stamps and tax credits less state and federal income taxes and FICA taxes. See text for description of how taxes are measured in each survey.

Total Family Expenditures (CE Survey): This summary measure includes all expenditures reported in the CE Survey. Expenditures are reported for three-month periods. We scale these quarterly expenditures to an annual level.

Total Family Consumption (CE Survey): Consumption includes all spending in total expenditures less spending on health care, education, pension plans, and cash contributions. In addition, housing and vehicle expenditures are converted to service flows. The rental equivalent for owned dwellings is used instead of spending on mortgage interest, property taxes, and spending on maintenance, repairs, and insurance. For vehicles we estimate the value of new car purchases for each household that owns a car, and calculate a service flow that is a function of this predicted value of vehicle purchases and the age of each vehicle the household owns assuming a constant geometric vehicle depreciation of 5 percent per quarter. See Meyer and Sullivan (2001) for more details.

Food Consumption (CE Survey): This includes spending for food at home (including food bought with Food Stamps), food purchased away from home, and meals received as pay.

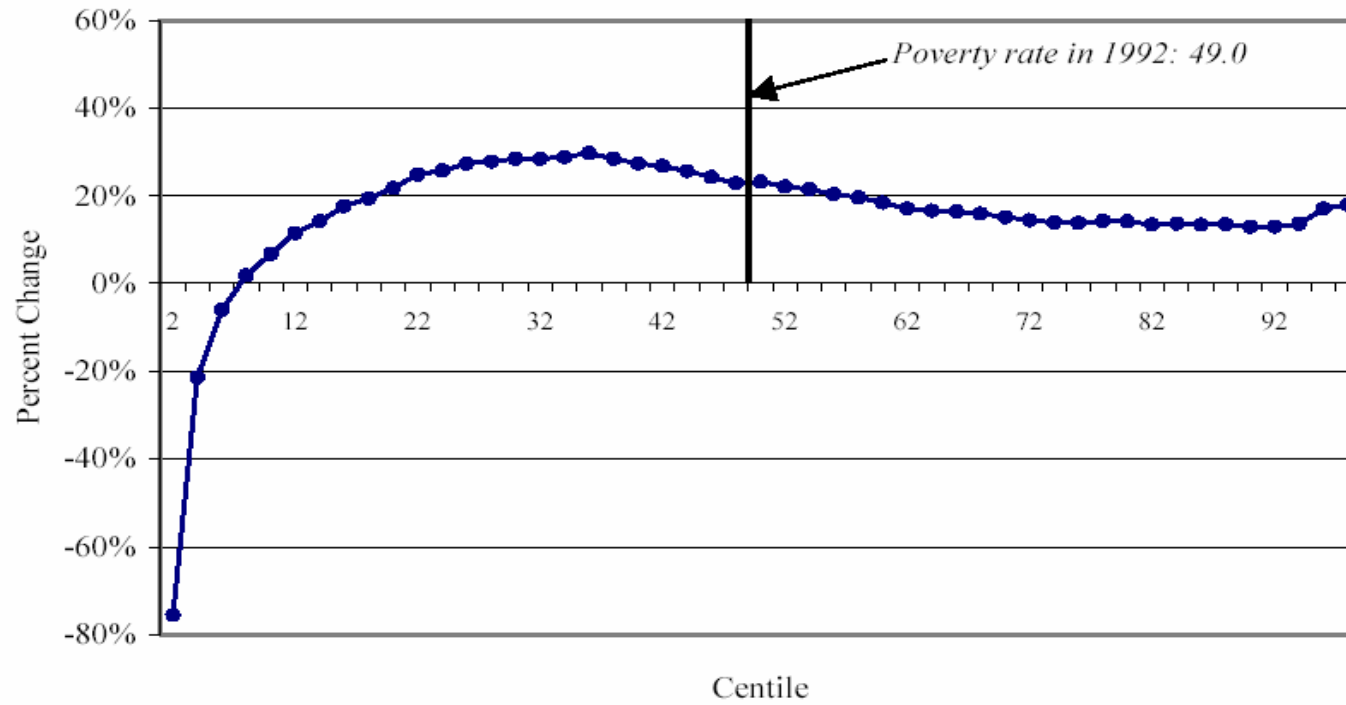
Food Consumption (PSID): This is the sum of expenditures on food at home, expenditures on food away from home, and dollars of Food Stamps received. For food at home respondents are asked "in addition to what you bought with Food Stamps, did you spend any money on food that you used at home?" As several other studies have argued (see Zeldes 1989, Gruber 1997), it is likely that the respondent will report consumption levels at the time of the interview. For this reason, we interpret the consumption response as pertaining to the interview year rather than the previous year.

Housing (CE Survey): This measure includes rent for renters and the reported rental equivalent of the property for non-renters. In addition, this includes spending on miscellaneous lodging expenses, utilities, spending on household operations such as domestic services, and spending on house furnishings and equipment.

Housing (PSID): This is a more narrow definition of housing consumption than the one from the CE Survey. It does not include utilities or other housing costs because they are not available throughout our sample period in the PSID. It includes rent for renters and the reported rental equivalent for those who neither rent nor own. For homeowners, we calculate a service flow of housing consumption based on the value of the home. This flow is calculated as a constant fraction (r) of the reported property value. This is the service flow for a durable with an after-tax interest rate r and with no depreciation. The results reported in Figure 5 are for $r = 0.07$, but we verify that the results do not change when we use values of r between 0.05 and 0.1. In addition, within the CE Survey this flow matched up fairly well with reported rental equivalent of the home.

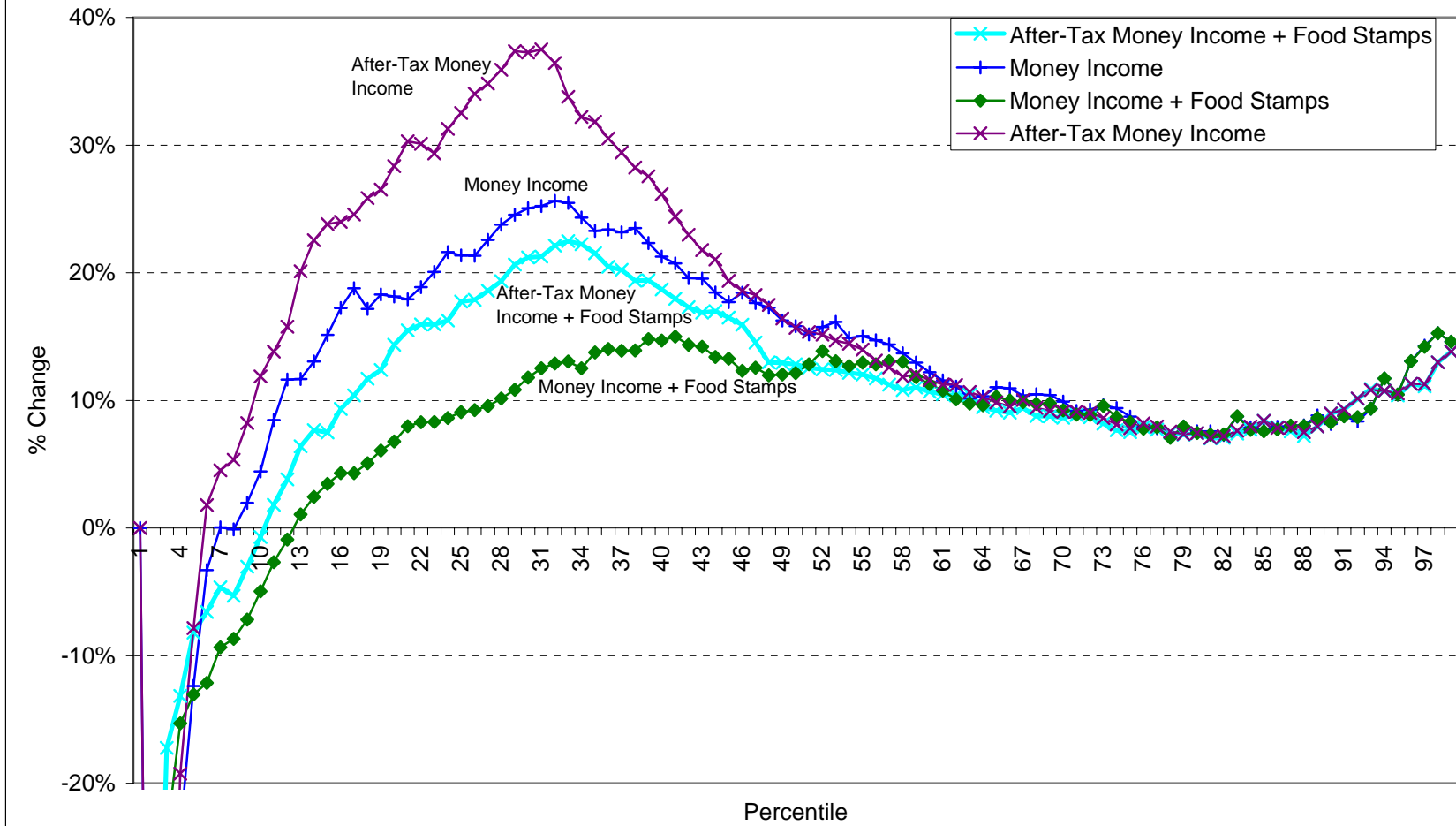
Equivalence Scales: In most cases we adjust for differences in family size by dividing our income and consumption measures by the poverty line. As a robustness check, and when we report levels instead of trends, we use an alternative equivalence scale equal to $s/(\text{mean of } s)$, where $s = 1/(\text{number of adults} + \text{number of children} * 0.7)^{0.7}$. This is a fairly standard equivalence scale that follows National Research Council (1995).

Figure 1
Percent Change in Income-to-Needs Ratio by Centile of Income-to-Needs: 1992-95 to 1997-2000
Children without Both Parents Present (A Reproduction of Figure 1B from Blank and Schoeni, 2003)



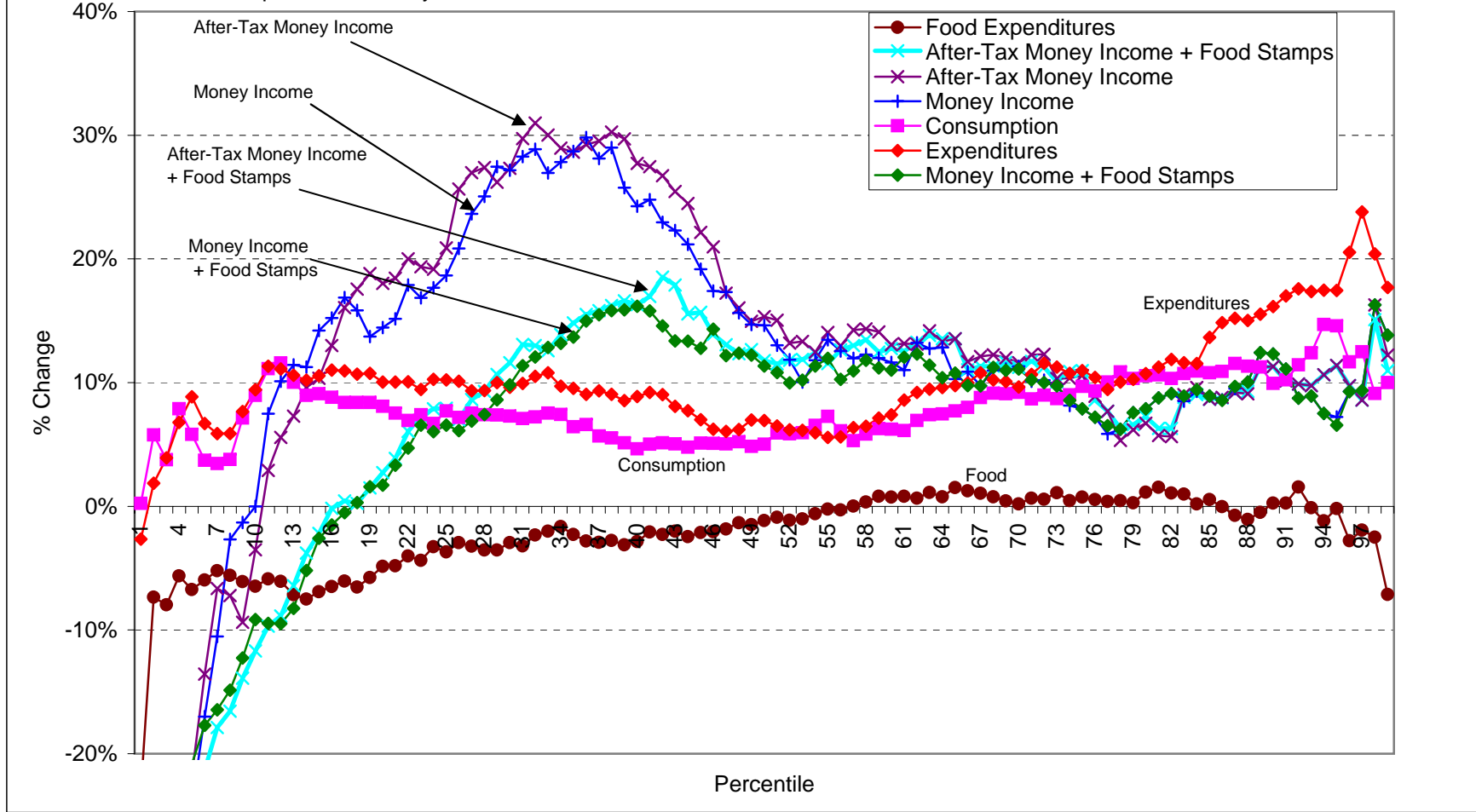
Notes: Income-to-needs is the ratio of pre-tax money income to the poverty line for each family.

Figure 2
 Changes in Income at Each Percentile, 1993-1995 to 1997-2000, Single Mothers, Current Population Survey



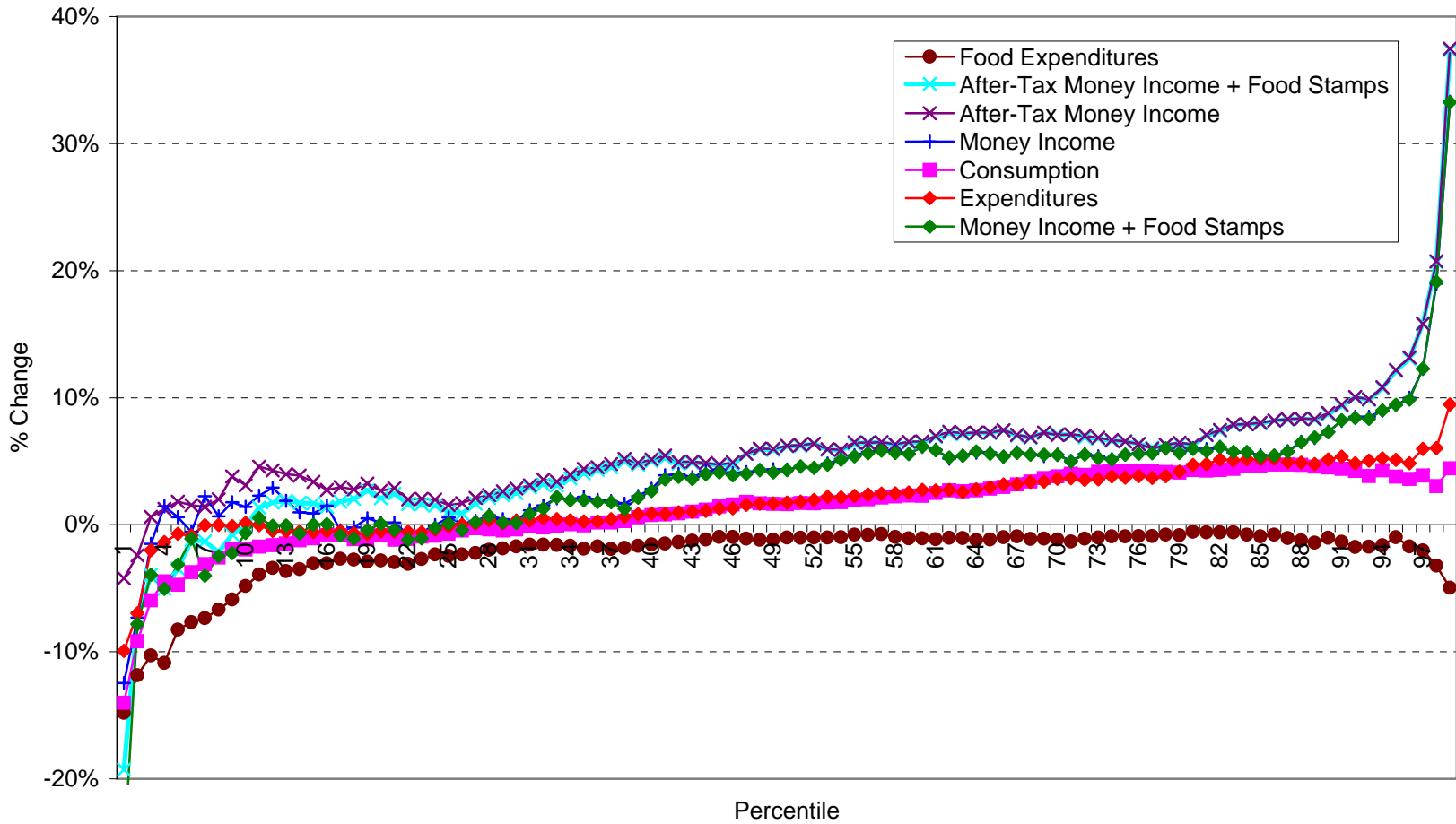
Notes: All data are from the March Current Population Survey. Each income measure is sorted by itself and is divided by the poverty line to express changes in real terms and to adjust for differences in family size. Sample includes single mothers ages 18 to 54 living with their own children only. Money income follows the Census definition, which includes all money income used in the official poverty rate.

Figure 3
 Changes in Income, Expenditures, and Consumption at Each Percentile, 1993-1995 to 1997-2000, Single Mothers,
 Consumer Expenditure Survey



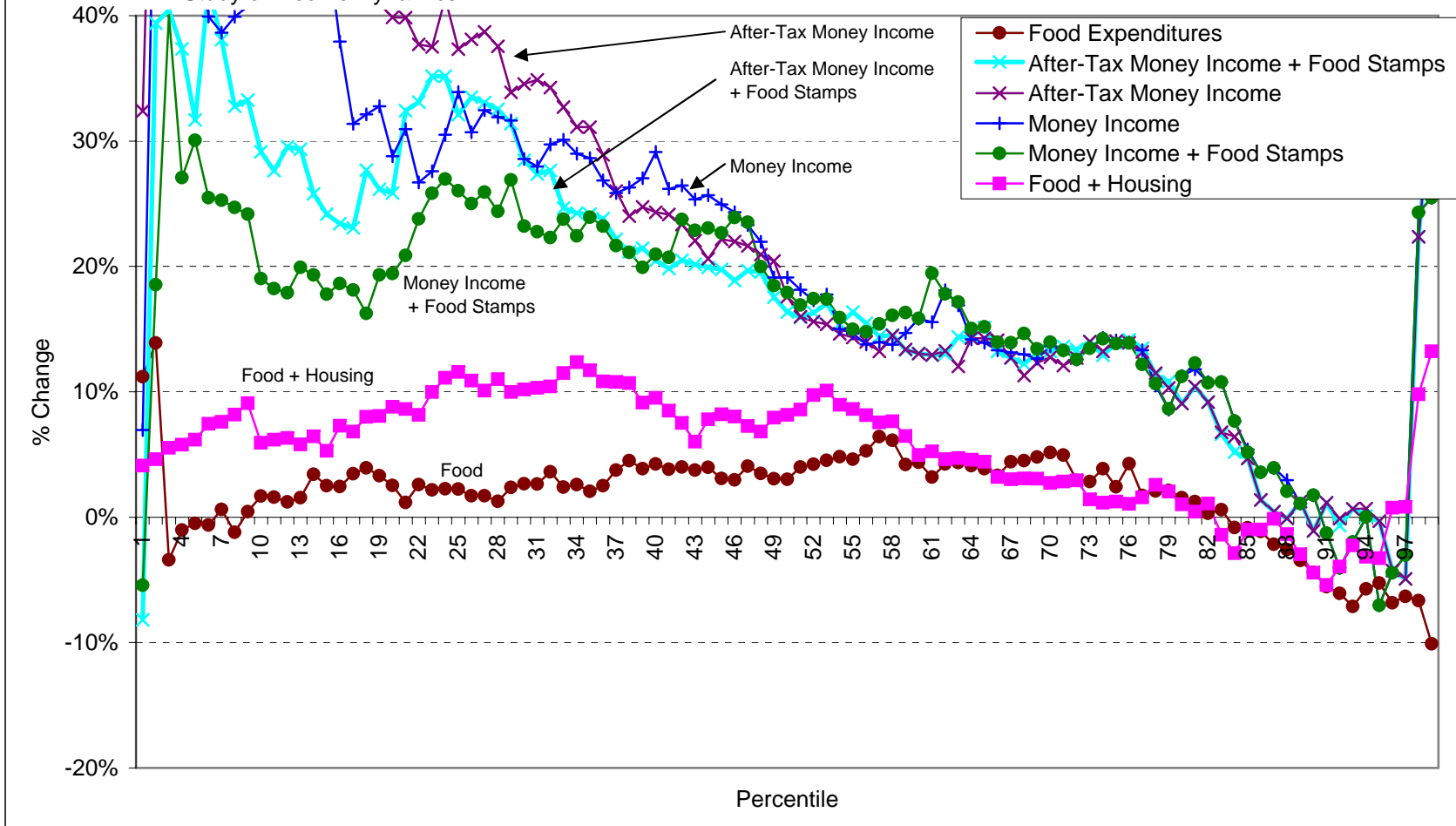
Notes: All data are from the Consumer Expenditure Survey. Each outcome is sorted by itself, so, for example, households at low quantiles of food are not necessarily the same households at low quantiles of expenditures. Each outcome is divided by the poverty line to express changes in real terms and to adjust for differences in family size. The sample includes single mothers ages 18 to 54 living with their own children only. "Incomplete income reporters" are excluded. See text and Appendix 1 for more details.

Figure 4
 Changes in Income, Expenditures, and Consumption at Each Percentile, 1993-1995 to 1997-2000, All Families
 Except Single Mothers, Consumer Expenditure Survey



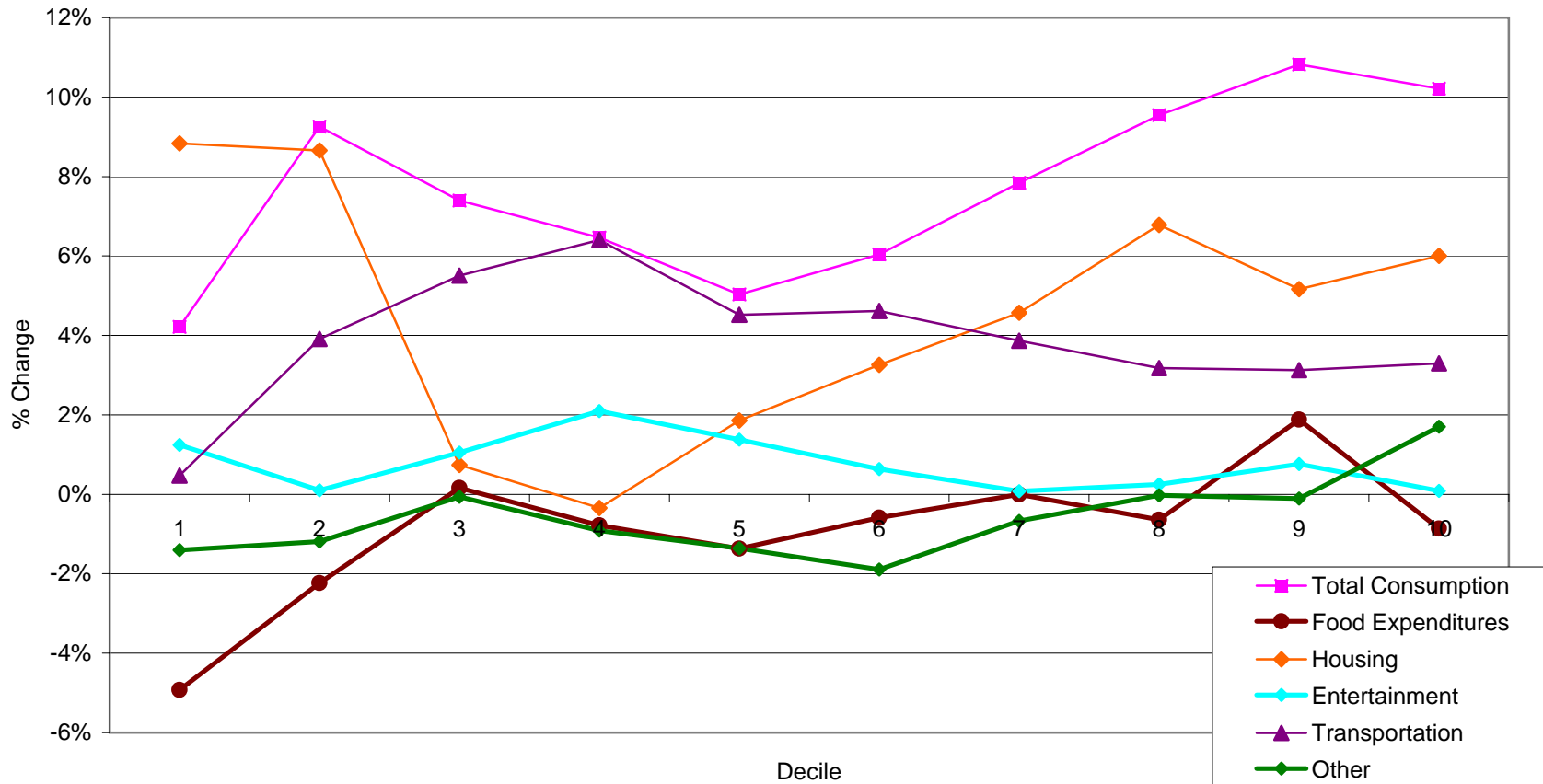
Notes: All data are from the Consumer Expenditure Survey. The sample includes all families with heads ages 18 to 62 except single mother families. See Figure 3 for additional notes.

Figure 5
 Changes in Income and Food Consumption at Each Percentile, 1993-1995 to 1997-2000, Single Mothers, Panel
 Study of Income Dynamics



Notes: All data are from the Panel Study of Income Dynamics Surveys from 1993 through 2001. Housing spending from the PSID includes rent, a service flow from owned property, and the rental equivalent for non-owners that do not pay for housing. See text, notes to Figure 3, and Appendix 1 for more details.

Figure 6
 Decomposition of Total Consumption Change into its Components by Consumption Decile,
 1993-1995 to 1997-2000, Single Mothers, Consumer Expenditure Survey



Notes: The decomposition weights the percentage change in a given consumption category by its average share over the two periods. Any residual from this decomposition is included in the "Other" category. Housing includes rent, a housing flow for homeowners, and other housing expenses. Entertainment includes admission fees to movies, shows, etc. as well as expenditures on television, radio, and other entertainment equipment. Transportation includes a service flow from owned vehicles as well as other transportation expenses.

Table 1

Employment and Welfare Receipt by Income and Consumption Deciles, 1993-2003, Single Mothers, Consumer Expenditure Survey

	Fraction Receiving AFDC/TANF or Food Stamps in Previous Year					Average Hours Worked per Year				
	1993-1995	1997-2000	2001-2003	(2) - (1)	(3) - (1)	1993-1995	1997-2000	2001-2003	(7)/(6)	(8)/(6)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Income Deciles										
First	0.722 (0.038)	0.517 (0.037)	0.331 (0.037)	-0.205 (0.053)	-0.391 (0.053)	339.3 (49.04)	570.8 (53.93)	549.3 (58.28)	1.68 (0.29)	1.62 (0.29)
Second	0.854 (0.033)	0.699 (0.035)	0.511 (0.039)	-0.154 (0.048)	-0.343 (0.051)	252.3 (42.04)	597.0 (61.85)	715.1 (65.28)	2.37 (0.46)	2.83 (0.54)
Third	0.839 (0.031)	0.608 (0.037)	0.412 (0.041)	-0.231 (0.048)	-0.427 (0.051)	447.3 (73.49)	977.2 (77.91)	1097.5 (79.00)	2.18 (0.40)	2.45 (0.44)
Fourth	0.748 (0.043)	0.463 (0.044)	0.392 (0.039)	-0.285 (0.061)	-0.356 (0.058)	630.7 (78.08)	1382.1 (73.30)	1498.2 (87.52)	2.19 (0.30)	2.38 (0.33)
Fifth	0.595 (0.072)	0.311 (0.037)	0.266 (0.038)	-0.284 (0.081)	-0.330 (0.082)	1161.8 (167.90)	1638.6 (61.80)	1592.4 (56.69)	1.41 (0.21)	1.37 (0.20)
Sixth	0.244 (0.047)	0.147 (0.031)	0.149 (0.028)	-0.097 (0.056)	-0.095 (0.054)	1660.1 (76.09)	1819.8 (49.03)	1768.5 (60.65)	1.10 (0.06)	1.07 (0.06)
Seventh	0.147 (0.032)	0.072 (0.019)	0.065 (0.023)	-0.075 (0.037)	-0.083 (0.039)	1846.5 (61.93)	2007.6 (46.91)	1933.8 (38.95)	1.09 (0.04)	1.05 (0.04)
Eighth	0.049 (0.020)	0.042 (0.014)	0.037 (0.014)	-0.007 (0.024)	-0.011 (0.025)	2000.8 (58.03)	2069.4 (44.86)	1967.9 (42.95)	1.03 (0.04)	0.98 (0.04)
Ninth	0.024 (0.010)	0.025 (0.010)	0.005 (0.005)	0.001 (0.014)	-0.019 (0.011)	1993.7 (59.79)	2093.6 (36.10)	2067.0 (42.63)	1.05 (0.04)	1.04 (0.04)
Tenth	0.019 (0.011)	0.008 (0.007)	0.000 (0.000)	-0.011 (0.013)	-0.019 (0.011)	2131.9 (62.32)	2070.9 (50.39)	2111.1 (49.87)	0.97 (0.04)	0.99 (0.04)
N	3,075	4,470	4,065			3,075	4,470	4,065		
Consumption Deciles										
First	0.926 (0.018)	0.755 (0.028)	0.531 (0.038)	-0.171 (0.034)	-0.395 (0.042)	247.9 (50.46)	558.3 (55.00)	747.8 (63.83)	2.25 (0.51)	3.02 (0.67)
Second	0.901 (0.022)	0.662 (0.030)	0.481 (0.034)	-0.239 (0.037)	-0.419 (0.040)	480.4 (68.88)	913.1 (66.21)	1076.1 (62.64)	1.90 (0.31)	2.24 (0.35)
Third	0.771 (0.037)	0.509 (0.037)	0.350 (0.033)	-0.262 (0.052)	-0.421 (0.049)	669.6 (73.18)	1186.5 (70.15)	1277.7 (58.81)	1.77 (0.22)	1.91 (0.23)
Fourth	0.579 (0.051)	0.364 (0.035)	0.275 (0.031)	-0.215 (0.062)	-0.304 (0.060)	974.9 (95.70)	1451.5 (62.92)	1420.8 (55.80)	1.49 (0.16)	1.46 (0.15)
Fifth	0.451 (0.041)	0.243 (0.034)	0.218 (0.027)	-0.209 (0.053)	-0.234 (0.049)	1227.4 (77.87)	1679.8 (55.05)	1607.4 (53.26)	1.37 (0.10)	1.31 (0.09)
Sixth	0.261 (0.039)	0.173 (0.024)	0.155 (0.024)	-0.088 (0.046)	-0.106 (0.046)	1483.8 (83.03)	1784.4 (43.85)	1639.4 (55.81)	1.20 (0.07)	1.10 (0.07)
Seventh	0.213 (0.045)	0.095 (0.020)	0.080 (0.020)	-0.118 (0.050)	-0.133 (0.049)	1550.5 (96.09)	1851.6 (45.80)	1802.3 (63.97)	1.19 (0.08)	1.16 (0.08)
Eighth	0.091 (0.023)	0.044 (0.014)	0.047 (0.012)	-0.048 (0.027)	-0.044 (0.026)	1859.2 (57.46)	1858.3 (50.05)	1901.4 (46.35)	1.00 (0.04)	1.02 (0.04)
Ninth	0.036 (0.011)	0.033 (0.011)	0.025 (0.011)	-0.003 (0.016)	-0.010 (0.016)	1922.9 (51.75)	2006.6 (50.86)	1851.8 (48.19)	1.04 (0.04)	0.96 (0.04)
Tenth	0.012 (0.007)	0.015 (0.006)	0.004 (0.003)	0.003 (0.009)	-0.008 (0.007)	2043.5 (65.97)	1935.3 (52.08)	1973.7 (49.74)	0.95 (0.04)	0.97 (0.04)
N	3,075	4,470	4,065			3,075	4,470	4,065		

Notes: Income refers to after-tax money income plus Food Stamps. The bootstrapped standard errors in parentheses are corrected for within family dependence.

Table 2
 Changes in Mean Consumption and Income by Deciles of Consumption and Income, Single Mothers, Consumer Expenditure Survey, 1993-2003

Decile	By Consumption Decile		By Income Decile		Consumption - Income		
	Consumption	Income	Consumption	Income	(1) - (2)	(3) - (4)	(1) - (4)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Ratio of Mean in 1997-2000 to Mean in 1993-1995							
First	1.042 (0.039)	0.836 (0.063)	1.145 (0.099)	0.707 (0.080)	0.207 (0.059)	0.439 (0.141)	0.336 (0.084)
Second	1.093 (0.033)	1.029 (0.074)	1.038 (0.069)	0.969 (0.042)	0.063 (0.075)	0.069 (0.081)	0.124 (0.040)
Third	1.074 (0.034)	1.154 (0.107)	1.077 (0.057)	1.078 (0.041)	-0.080 (0.103)	-0.001 (0.052)	-0.004 (0.034)
Fourth	1.065 (0.034)	1.147 (0.091)	1.158 (0.075)	1.146 (0.043)	-0.083 (0.073)	0.012 (0.059)	-0.081 (0.033)
Fifth	1.050 (0.032)	1.127 (0.101)	1.167 (0.058)	1.147 (0.058)	-0.077 (0.095)	0.020 (0.057)	-0.097 (0.042)
Sixth	1.060 (0.032)	1.018 (0.080)	1.048 (0.065)	1.123 (0.046)	0.042 (0.081)	-0.075 (0.043)	-0.063 (0.032)
Seventh	1.078 (0.030)	1.120 (0.075)	1.035 (0.042)	1.124 (0.045)	-0.042 (0.059)	-0.088 (0.049)	-0.045 (0.032)
Eighth	1.095 (0.032)	1.151 (0.113)	1.078 (0.042)	1.092 (0.047)	-0.056 (0.107)	-0.014 (0.044)	0.004 (0.034)
Ninth	1.108 (0.033)	1.171 (0.070)	1.084 (0.047)	1.086 (0.045)	-0.062 (0.053)	-0.002 (0.037)	0.023 (0.032)
Tenth	1.102 (0.040)	1.227 (0.110)	1.075 (0.049)	1.234 (0.098)	-0.125 (0.096)	-0.159 (0.093)	-0.132 (0.088)
Panel B: Ratio of Mean in 2001-2003 to Mean in 1993-1995							
First	1.008 (0.042)	0.954 (0.075)	1.000 (0.059)	0.752 (0.064)	0.054 (0.069)	0.248 (0.095)	0.255 (0.076)
Second	1.101 (0.036)	1.178 (0.081)	1.106 (0.074)	0.989 (0.045)	-0.077 (0.084)	0.116 (0.081)	0.111 (0.047)
Third	1.077 (0.034)	1.138 (0.078)	1.133 (0.054)	1.124 (0.043)	-0.061 (0.072)	0.009 (0.061)	-0.048 (0.039)
Fourth	1.071 (0.034)	1.175 (0.102)	1.142 (0.069)	1.187 (0.046)	-0.104 (0.082)	-0.045 (0.060)	-0.116 (0.036)
Fifth	1.040 (0.030)	1.130 (0.095)	1.068 (0.058)	1.182 (0.060)	-0.089 (0.094)	-0.114 (0.051)	-0.142 (0.045)
Sixth	1.026 (0.029)	0.947 (0.077)	1.033 (0.060)	1.164 (0.047)	0.079 (0.077)	-0.131 (0.048)	-0.138 (0.033)
Seventh	1.023 (0.026)	1.077 (0.074)	0.942 (0.038)	1.152 (0.046)	-0.054 (0.059)	-0.210 (0.047)	-0.129 (0.033)
Eighth	1.023 (0.028)	1.142 (0.063)	0.959 (0.042)	1.115 (0.048)	-0.120 (0.054)	-0.157 (0.044)	-0.092 (0.035)
Ninth	1.020 (0.030)	1.181 (0.071)	1.015 (0.042)	1.113 (0.045)	-0.161 (0.058)	-0.099 (0.035)	-0.093 (0.033)
Tenth	1.041 (0.041)	1.265 (0.097)	1.077 (0.055)	1.187 (0.076)	-0.223 (0.070)	-0.110 (0.066)	-0.145 (0.057)

Notes: Income refers to after-tax money income plus Food Stamps. See Appendix 2 for a description of how the bootstrapped standard errors reported in parentheses are calculated.

Table 3

Quantile Regressions for Changes in Consumption and Income, Single Mothers and Comparison Groups, Consumer Expenditure Survey, 1993-2003

	Single Mothers Only				Single Women		Mothers	
	Consumption		Income		Consumption	Income	Consumption	Income
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Quantile Regression:								
5th Percentile								
(1997-00) - (1993-95)	0.056 (0.047)	0.047 (0.044)	-0.250 (0.088)	-0.190 (0.085)	0.104 (0.064)	-0.181 (0.156)	0.055 (0.057)	-0.387 (0.174)
(2001-03) - (1993-95)	0.050 (0.053)	-0.037 (0.046)	-0.250 (0.104)	-0.188 (0.109)	0.114 (0.066)	-0.043 (0.179)	0.045 (0.060)	-0.601 (0.175)
10th Percentile								
(1997-00) - (1993-95)	0.086 (0.032)	0.066 (0.031)	-0.118 (0.060)	-0.079 (0.068)	0.118 (0.052)	-0.079 (0.112)	0.085 (0.041)	-0.188 (0.090)
(2001-03) - (1993-95)	0.075 (0.035)	0.016 (0.036)	-0.084 (0.053)	0.002 (0.069)	0.151 (0.052)	0.090 (0.107)	0.084 (0.046)	-0.272 (0.090)
15th Percentile								
(1997-00) - (1993-95)	0.087 (0.030)	0.066 (0.031)	-0.018 (0.042)	-0.007 (0.054)	0.074 (0.041)	-0.003 (0.067)	0.079 (0.036)	-0.110 (0.080)
(2001-03) - (1993-95)	0.097 (0.032)	0.040 (0.032)	-0.001 (0.043)	-0.001 (0.054)	0.096 (0.045)	0.095 (0.075)	0.108 (0.038)	-0.179 (0.086)
20th Percentile								
(1997-00) - (1993-95)	0.078 (0.037)	0.060 (0.027)	0.030 (0.047)	0.039 (0.044)	0.071 (0.039)	0.047 (0.065)	0.057 (0.038)	-0.081 (0.063)
(2001-03) - (1993-95)	0.088 (0.036)	0.026 (0.027)	0.076 (0.053)	0.058 (0.044)	0.082 (0.044)	0.119 (0.068)	0.084 (0.038)	-0.152 (0.064)
25th Percentile								
(1997-00) - (1993-95)	0.074 (0.031)	0.050 (0.023)	0.079 (0.041)	0.040 (0.042)	0.030 (0.030)	0.026 (0.056)	0.045 (0.032)	-0.009 (0.068)
(2001-03) - (1993-95)	0.075 (0.034)	0.024 (0.026)	0.129 (0.040)	0.078 (0.043)	0.062 (0.033)	0.098 (0.063)	0.064 (0.033)	-0.082 (0.060)
30th Percentile								
(1997-00) - (1993-95)	0.070 (0.030)	0.042 (0.024)	0.110 (0.038)	0.045 (0.043)	0.025 (0.030)	0.005 (0.052)	0.053 (0.032)	0.004 (0.056)
(2001-03) - (1993-95)	0.068 (0.033)	0.017 (0.024)	0.148 (0.041)	0.053 (0.043)	0.063 (0.035)	0.091 (0.055)	0.065 (0.032)	-0.084 (0.057)
35th Percentile								
(1997-00) - (1993-95)	0.062 (0.036)	0.033 (0.024)	0.139 (0.034)	0.043 (0.037)	0.013 (0.029)	-0.003 (0.045)	0.035 (0.028)	-0.025 (0.046)
(2001-03) - (1993-95)	0.071 (0.038)	0.019 (0.024)	0.175 (0.040)	0.037 (0.037)	0.051 (0.029)	0.078 (0.055)	0.049 (0.029)	-0.093 (0.046)
40th Percentile								
(1997-00) - (1993-95)	0.045 (0.033)	0.041 (0.020)	0.153 (0.039)	0.030 (0.034)	0.011 (0.027)	0.017 (0.042)	0.023 (0.032)	-0.012 (0.043)
(2001-03) - (1993-95)	0.050 (0.033)	0.015 (0.021)	0.188 (0.037)	0.021 (0.035)	0.030 (0.027)	0.082 (0.048)	0.023 (0.028)	-0.091 (0.039)
45th Percentile								
(1997-00) - (1993-95)	0.050 (0.033)	0.036 (0.022)	0.146 (0.051)	0.021 (0.032)	0.008 (0.029)	0.017 (0.043)	0.024 (0.030)	-0.010 (0.045)
(2001-03) - (1993-95)	0.042 (0.027)	0.006 (0.023)	0.166 (0.058)	0.023 (0.032)	0.022 (0.029)	0.080 (0.044)	0.025 (0.029)	-0.072 (0.044)
50th Percentile								
(1997-00) - (1993-95)	0.049 (0.027)	0.033 (0.021)	0.111 (0.044)	0.043 (0.028)	0.011 (0.026)	0.018 (0.047)	0.024 (0.028)	0.019 (0.041)
(2001-03) - (1993-95)	0.024 (0.026)	0.000 (0.020)	0.144 (0.047)	0.052 (0.031)	0.015 (0.028)	0.062 (0.046)	0.021 (0.028)	-0.055 (0.043)
Controls Included								
	No	Yes	No	Yes	Yes	Yes	Yes	Yes
N	11,610	11,610	11,610	11,610	26,368	26,368	26,368	26,368

Notes: Controls include a cubic in the age of the head, number of children less than 18, number of girls age 2-15, number of boys age 2-15, education of the head, race, and region. For the models that include married mothers we also include the number of earners in the family and the education of the spouse. Columns 1 through 4 report the coefficients on the 2nd and 3rd period dummies in quantile regressions where the first period dummy is excluded. Columns 5 through 8 report the difference between the coefficients on single mother*period interaction terms. All standard errors are bootstrapped and corrected for within family dependence. See text for more details.

Table 4

Comparisons of Survey Reports of Welfare and Food Stamp Dollars to Administrative Aggregates, 1993-2002, Consumer Expenditure Survey and Current Population Survey (\$ Billions, Nominal)

	AFDC/TANF Cash Transfers					Food Stamps				
	CE	CPS	Admin	CE/ Admin	CPS/ Admin	CE	CPS	Admin	CE/ Admin	CPS/ Admin
	Survey	(2)	(3)	(4)	(5)	Survey	(7)	(8)	(9)	(10)
1993	19.10	19.88	22.52	0.848	0.883	15.04	14.92	22.20	0.678	0.672
1994	17.36	19.25	22.65	0.766	0.850	14.77	15.26	22.80	0.648	0.669
1995	15.31	17.65	21.53	0.711	0.820	14.50	14.49	22.40	0.647	0.647
1996	11.85	15.43	19.76	0.600	0.781	13.10	14.11	22.00	0.595	0.641
1997	9.84	11.42	13.91	0.708	0.821	10.90	12.22	18.70	0.583	0.653
1998	8.02	9.61	13.74	0.584	0.699	8.90	10.76	16.50	0.539	0.652
1999	6.22	7.79	12.67	0.491	0.615	8.54	9.45	15.50	0.551	0.610
2000	5.16	6.91	10.92	0.473	0.633	8.25	8.71	14.90	0.554	0.585
2001	4.90	6.21	9.96	0.492	0.624	6.92	9.65	16.00	0.433	0.603
2002	4.47	5.95	9.61	0.465	0.620	7.77	11.16	18.70	0.415	0.597

Notes: Columns 1, 2, 6, and 7 report the aggregate amount of welfare and Food Stamps reported in the CE Survey and the CPS using population weights. Reported transfer dollars are allocated to calendar years based on the reference period for each survey. Administrative aggregates for welfare come from Roemer (2000) for the years 1993-1996, and from TANF Financial Data, ACF, U.S. Department of Health and Human Services for the years after 1996. Fiscal year data are converted to calendar year. Administrative aggregates for Food Stamps are from National Income and Product Accounts, Government Social Benefits, BEA, U.S. Department of Commerce.

Table 5

Mean and Shares of Income and Components by Income Decile, 1993-1995 and 1997-2000, Single Mothers, Consumer Expenditure Survey

	Pre-tax Money Income Plus Food Stamps			Welfare Income Plus Food Stamps			Earnings			Social Security and SSI			Other Income		
	1993- 1995	1997- 2000	(2)/(1)	1993- 1995	1997- 2000	(5)/(4)	1993- 1995	1997- 2000	(8)/(7)	1993- 1995	1997- 2000	(11)/(10)	1993- 1995	1997- 2000	(14)/(13)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Means by Income Decile															
First	4,401 (213)	4,418 (816)	1.004 (0.192)	2,788 (229)	1,497 (151)	0.537 (0.070)	1,023 (134)	2,134 (752)	2.087 (0.784)	331 (97)	335 (91)	1.010 (0.405)	250 (67)	422 (109)	1.685 (0.625)
Second	8,025 (275)	7,878 (337)	0.982 (0.054)	5,581 (359)	3,455 (286)	0.619 (0.065)	1,379 (258)	2,717 (327)	1.970 (0.438)	415 (123)	979 (155)	2.360 (0.791)	565 (121)	701 (135)	1.240 (0.357)
Third	9,753 (335)	10,552 (245)	1.082 (0.045)	5,994 (388)	3,370 (388)	0.562 (0.074)	2,227 (340)	5,102 (445)	2.291 (0.402)	884 (212)	1,254 (255)	1.418 (0.445)	627 (167)	714 (122)	1.139 (0.360)
Fourth	11,834 (299)	13,557 (451)	1.146 (0.048)	5,996 (425)	1,795 (207)	0.299 (0.040)	3,583 (541)	8,567 (636)	2.391 (0.402)	1,159 (216)	1,495 (269)	1.290 (0.334)	1,053 (271)	1,624 (318)	1.541 (0.498)
Fifth	14,189 (760)	16,375 (481)	1.154 (0.070)	3,959 (696)	1,322 (257)	0.334 (0.087)	7,408 (1313)	12,662 (757)	1.709 (0.320)	1,050 (247)	1,003 (237)	0.955 (0.318)	1,739 (378)	1,308 (207)	0.752 (0.202)
Sixth	18,819 (751)	19,887 (544)	1.057 (0.051)	1,318 (330)	539 (121)	0.409 (0.137)	14,446 (968)	16,075 (530)	1.113 (0.083)	1,163 (465)	1,030 (277)	0.886 (0.427)	1,734 (456)	2,096 (459)	1.209 (0.414)
Seventh	22,063 (996)	25,153 (842)	1.140 (0.064)	620 (178)	251 (94)	0.406 (0.191)	17,895 (1,203)	21,415 (1038)	1.197 (0.099)	663 (223)	477 (143)	0.720 (0.325)	2,782 (505)	2,736 (456)	0.984 (0.243)
Eighth	28,294 (986)	30,427 (899)	1.075 (0.049)	169 (88)	173 (74)	1.027 (0.695)	23,927 (1,003)	26,466 (905)	1.106 (0.060)	939 (261)	615 (208)	0.655 (0.287)	3,110 (533)	3,089 (395)	0.993 (0.212)
Ninth	35,671 (1,104)	40,666 (1,395)	1.140 (0.053)	88 (49)	152 (87)	1.723 (1.374)	30,344 (1,199)	35,001 (1,291)	1.153 (0.062)	636 (258)	828 (221)	1.301 (0.632)	4,210 (647)	4,361 (753)	1.036 (0.239)
Tenth	60,070 (2,954)	73,204 (4,378)	1.219 (0.094)	57 (34)	45 (38)	0.782 (0.809)	48,439 (2,940)	51,029 (2,400)	1.053 (0.081)	863 (265)	938 (332)	1.086 (0.509)	9,363 (1,680)	12,526 (2,044)	1.338 (0.324)
	1993- 1995	1997- 2000	(2) - (1)	1993- 1995	1997- 2000	(5) - (4)	1993- 1995	1997- 2000	(8) - (7)	1993- 1995	1997- 2000	(11) - (10)	1993- 1995	1997- 2000	(14) - (13)
Shares by Income Decile															
First	1.00	1.00	0.00	0.63	0.34	-0.29	0.23	0.48	0.25	0.08	0.08	0.00	0.06	0.10	0.04
Second	1.00	1.00	0.00	0.70	0.44	-0.26	0.17	0.34	0.17	0.05	0.12	0.07	0.07	0.09	0.02
Third	1.00	1.00	0.00	0.61	0.32	-0.30	0.23	0.48	0.26	0.09	0.12	0.03	0.06	0.07	0.00
Fourth	1.00	1.00	0.00	0.51	0.13	-0.37	0.30	0.63	0.33	0.10	0.11	0.01	0.09	0.12	0.03
Fifth	1.00	1.00	0.00	0.28	0.08	-0.20	0.52	0.77	0.25	0.07	0.06	-0.01	0.12	0.08	-0.04
Sixth	1.00	1.00	0.00	0.07	0.03	-0.04	0.77	0.81	0.04	0.06	0.05	-0.01	0.09	0.11	0.01
Seventh	1.00	1.00	0.00	0.03	0.01	-0.02	0.81	0.85	0.04	0.03	0.02	-0.01	0.13	0.11	-0.02
Eighth	1.00	1.00	0.00	0.01	0.01	0.00	0.85	0.87	0.02	0.03	0.02	-0.01	0.11	0.10	-0.01
Ninth	1.00	1.00	0.00	0.00	0.00	0.00	0.85	0.86	0.01	0.02	0.02	0.00	0.12	0.11	-0.01
Tenth	1.00	1.00	0.00	0.00	0.00	0.00	0.81	0.70	-0.11	0.01	0.01	0.00	0.16	0.17	0.02
N	3,075	4,470		3,075	4,470		3,075	4,470		3,075	4,470		3,075	4,470	

Notes: Dollar figures are expressed in year 2000 dollars. Income deciles are determined using after-tax money income plus Food Stamps. The bootstrapped standard errors in parentheses are corrected for within family dependence.

Table 6
Changes in Underreporting-Adjusted Income between 1993-1995 and 1997-2000, Single Mothers, Consumer Expenditure Survey

Panel A	Ratio of Mean Income in 1997-2000 to Mean Income in 1993-1995		
	Reported After-Tax Income Plus Food Stamps	Adjusted Income (Transfers Allocated by Expenditures)	Adjusted Income (Transfers Allocated by Income)
	(1)	(2)	(3)
Income Deciles			
First	0.707	0.884	1.005
Second	0.969	1.015	1.015
Third	1.078	1.118	1.085
Fourth	1.146	1.167	1.153
Fifth	1.147	1.141	1.136
Sixth	1.123	1.116	1.106
Seventh	1.124	1.113	1.113
Eighth	1.092	1.088	1.086
Ninth	1.086	1.080	1.079
Tenth	1.234	1.233	1.232
Quantile Estimates for Change in Income between 1993-1995 and 1997-2000			
Panel B	Reported After-Tax Income Plus Food Stamps	Adjusted Income (Transfers Allocated by Expenditures)	Adjusted Income (Transfers Allocated by Income)
	(1)	(2)	(3)
Percentiles			
Fifth	-0.190	-0.037	0.007
Tenth	-0.079	0.025	0.046
Fifteenth	-0.007	0.046	0.047
Twentieth	0.039	0.045	0.047
Twenty-fifth	0.040	0.066	0.056
Thirtieth	0.045	0.058	0.050
Thirty-fifth	0.043	0.052	0.045
Fortieth	0.030	0.049	0.041
Forty-fifth	0.021	0.045	0.035
Fiftieth	0.043	0.066	0.056

Notes: Panel A: In each column, observations are sorted into deciles by reported after-tax money income plus Food Stamps. Column 1 reports the ratios from Column 4 of Table 2. Column 2 reports ratios for income adjusted by allocating welfare income to non-reporters starting with those at the bottom of the expenditure distribution as described in Appendix 3. Column 3 reports ratios for income adjusted by allocating welfare income first to those in the bottom of the income distribution. Panel B: Column 1 reports the estimates for income with controls from Column 4 of Table 3 (β_2 from Equation 1). Columns 2 and 3 report the same parameter when the adjusted income measures are used as the dependent variable.

Table 7

Shares of Consumption by Consumption Decile, 1993-1995 and 1997-2000, Single Mothers, Consumer Expenditure Survey

	Food at Home			Food Away from Home			Housing			Transportation			Entertainment			Child Care		
	1993- 1995	1997- 2000	(2) - (1)	1993- 1995	1997- 2000	(5) - (4)	1993- 1995	1997- 2000	(8) - (7)	1993- 1995	1997- 2000	(11) - (10)	1993- 1995	1997- 2000	(14) - (13)	1993- 1995	1997- 2000	(17) - (16)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Deciles																		
First	0.391	0.324	-0.067	0.024	0.022	-0.002	0.364	0.427	0.063	0.071	0.072	0.002	0.033	0.042	0.009	0.005	0.009	0.004
Second	0.321	0.268	-0.053	0.024	0.026	0.002	0.420	0.460	0.040	0.078	0.102	0.024	0.041	0.038	-0.002	0.008	0.015	0.007
Third	0.248	0.224	-0.024	0.024	0.030	0.007	0.495	0.468	-0.027	0.089	0.125	0.036	0.039	0.045	0.006	0.017	0.016	0.000
Fourth	0.227	0.196	-0.031	0.026	0.033	0.008	0.508	0.473	-0.034	0.103	0.146	0.043	0.034	0.048	0.014	0.015	0.028	0.013
Fifth	0.204	0.176	-0.028	0.032	0.035	0.003	0.484	0.478	-0.005	0.132	0.163	0.032	0.035	0.045	0.010	0.025	0.032	0.007
Sixth	0.178	0.155	-0.024	0.031	0.037	0.006	0.477	0.480	0.003	0.151	0.182	0.031	0.045	0.048	0.003	0.027	0.030	0.003
Seventh	0.161	0.144	-0.017	0.035	0.038	0.003	0.466	0.474	0.008	0.164	0.185	0.022	0.054	0.050	-0.003	0.022	0.035	0.013
Eighth	0.157	0.129	-0.028	0.037	0.042	0.005	0.452	0.473	0.021	0.185	0.197	0.012	0.057	0.055	-0.003	0.038	0.031	-0.007
Ninth	0.127	0.123	-0.004	0.037	0.042	0.005	0.464	0.465	0.001	0.187	0.196	0.009	0.060	0.061	0.001	0.039	0.032	-0.007
Tenth	0.119	0.101	-0.018	0.050	0.044	-0.007	0.439	0.452	0.013	0.175	0.188	0.013	0.076	0.070	-0.006	0.033	0.025	-0.008
N	3,075	4,470		3,075	4,470		3,075	4,470		3,075	4,470		3,075	4,470		3,075	4,470	

Notes: Housing includes rent, a housing flow for homeowners, and other housing expenses. Transportation includes a service flow from owned vehicles as well as other transportation expenses. Entertainment includes admission fees to movies, shows, etc. as well as expenditures on television, radio, and other entertainment equipment. Child Care includes spending on babysitting and child care services.

Table 8

Trends in the Share of Single Mothers in Public or Subsidized Housing, Homeownership, and Rent by Consumption Decile, 1993-2003, Single Mothers, Consumer Expenditure Survey

	1993-1995	1997-2000	2001-2003	(2) - (1)	(3) - (1)	1993-1995	1997-2000	2001-2003	(7) - (6)	(8) - (6)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: Share in Public or Subsidized Housing, All Single Mothers						Panel B: Homeownership Rates, All Single Mothers				
Consumption Deciles										
First	0.590	0.618	0.725	0.028	0.135	0.008	0.034	0.029	0.026	0.021
Second	0.459	0.447	0.404	-0.012	-0.055	0.036	0.074	0.077	0.038	0.041
Third	0.325	0.352	0.357	0.027	0.032	0.076	0.161	0.170	0.085	0.094
Fourth	0.203	0.287	0.312	0.084	0.109	0.183	0.190	0.213	0.007	0.029
Fifth	0.237	0.181	0.215	-0.056	-0.022	0.147	0.211	0.265	0.063	0.118
Sixth	0.085	0.137	0.149	0.052	0.064	0.283	0.385	0.352	0.101	0.069
Seventh	0.085	0.075	0.113	-0.010	0.029	0.384	0.451	0.451	0.067	0.066
Eighth	0.036	0.071	0.050	0.035	0.014	0.461	0.570	0.546	0.109	0.084
Ninth	0.047	0.043	0.060	-0.004	0.013	0.611	0.573	0.640	-0.039	0.029
Tenth	0.012	0.020	0.042	0.008	0.030	0.722	0.779	0.728	0.057	0.006
N	3,075	4,470	4,065			3,075	4,470	4,065		
Panel C: Out of Pocket Rent, Non-Home Owning Single Mothers in Public or Subsidized Housing						Panel D: Out of Pocket Rent, Non-Home Owning Single Mothers Not in Public or Subsidized Housing				
	1993-1995	1997-2000	2001-2003	(2)/(1)	(3)/(1)	1993-1995	1997-2000	2001-2003	(7)/(6)	(8)/(6)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Consumption Deciles										
First	1,094	1,331	1,072	1.217	0.980	1,718	2,165	2,216	1.261	1.290
Second	1,525	2,239	2,127	1.468	1.395	2,749	3,518	3,518	1.280	1.280
Third	2,391	3,107	3,325	1.299	1.390	4,432	4,220	4,255	0.952	0.960
Fourth	3,480	3,482	3,598	1.001	1.034	4,955	5,063	5,391	1.022	1.088
Fifth	3,730	4,436	4,828	1.189	1.294	5,460	5,382	5,867	0.986	1.074
Top Half	5,763	6,496	6,577	1.127	1.141	7,285	8,242	8,074	1.131	1.108
N	588	952	881			1,596	1,962	1,711		

Notes: Panel A reports the fraction of all single mothers that report either living in public housing or receiving assistance from the government for housing costs. Dollar figures are expressed in year 2000 dollars.

Table 9

Trends in Housing Characteristics by Consumption Decile, 1993-2003, Single Mothers, Consumer Expenditure Survey

	1993- 1995	1997- 2000	2001- 2003	(2) - (1)	(3) - (1)	1993- 1995	1997- 2000	2001- 2003	(7) - (6)	(8) - (6)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: Number of Rooms					Panel B: Number of Bedrooms					
First Decile	4.221 (0.119)	4.038 (0.085)	4.232 (0.097)	-0.184 (0.146)	0.011 (0.154)	2.177 (0.077)	2.007 (0.047)	2.144 (0.052)	-0.170 (0.090)	-0.033 (0.092)
Second Decile	4.213 (0.084)	4.175 (0.071)	4.067 (0.085)	-0.038 (0.110)	-0.146 (0.120)	2.121 (0.045)	2.111 (0.049)	2.078 (0.045)	-0.010 (0.067)	-0.043 (0.064)
Third Decile	4.369 (0.075)	4.471 (0.099)	4.542 (0.091)	0.103 (0.124)	0.173 (0.118)	2.113 (0.042)	2.187 (0.053)	2.244 (0.046)	0.074 (0.067)	0.131 (0.062)
Fourth Decile	4.467 (0.111)	4.551 (0.091)	4.535 (0.104)	0.084 (0.144)	0.068 (0.152)	2.200 (0.054)	2.224 (0.050)	2.248 (0.053)	0.024 (0.074)	0.048 (0.076)
Fifth Decile	4.809 (0.109)	4.842 (0.139)	5.127 (0.118)	0.034 (0.177)	0.319 (0.161)	2.311 (0.053)	2.375 (0.067)	2.457 (0.054)	0.064 (0.085)	0.145 (0.076)
Top Half	5.715 (0.085)	5.850 (0.072)	5.974 (0.071)	0.135 (0.111)	0.258 (0.111)	2.695 (0.040)	2.833 (0.040)	2.832 (0.036)	0.138 (0.057)	0.137 (0.054)
Panel C: Number of Bathrooms					Panel D: Air Conditioning					
First Decile	0.984 (0.028)	1.019 (0.027)	1.070 (0.032)	0.035 (0.039)	0.086 (0.043)	0.467 (0.045)	0.554 (0.037)	0.664 (0.037)	0.087 (0.058)	0.197 (0.059)
Second Decile	1.041 (0.025)	1.086 (0.024)	1.057 (0.033)	0.045 (0.035)	0.016 (0.041)	0.467 (0.040)	0.561 (0.029)	0.632 (0.034)	0.095 (0.050)	0.165 (0.053)
Third Decile	1.115 (0.033)	1.129 (0.031)	1.156 (0.028)	0.014 (0.046)	0.040 (0.043)	0.470 (0.042)	0.561 (0.034)	0.652 (0.033)	0.091 (0.054)	0.182 (0.054)
Fourth Decile	1.154 (0.036)	1.178 (0.027)	1.190 (0.031)	0.024 (0.046)	0.037 (0.048)	0.505 (0.042)	0.646 (0.034)	0.654 (0.035)	0.142 (0.054)	0.149 (0.055)
Fifth Decile	1.244 (0.042)	1.258 (0.035)	1.345 (0.040)	0.014 (0.055)	0.101 (0.058)	0.559 (0.045)	0.668 (0.033)	0.736 (0.031)	0.108 (0.056)	0.176 (0.055)
Top Half	1.564 (0.033)	1.654 (0.028)	1.700 (0.025)	0.091 (0.043)	0.136 (0.042)	0.663 (0.021)	0.727 (0.016)	0.793 (0.015)	0.064 (0.026)	0.130 (0.026)
Panel E: Central Air					Panel F: Dishwasher					
First Decile	0.239 (0.038)	0.285 (0.033)	0.399 (0.039)	0.046 (0.051)	0.160 (0.055)	0.150 (0.033)	0.121 (0.021)	0.194 (0.032)	-0.029 (0.039)	0.044 (0.046)
Second Decile	0.222 (0.034)	0.337 (0.029)	0.346 (0.036)	0.115 (0.045)	0.124 (0.049)	0.152 (0.030)	0.176 (0.021)	0.178 (0.026)	0.024 (0.037)	0.026 (0.040)
Third Decile	0.220 (0.037)	0.341 (0.035)	0.358 (0.037)	0.122 (0.051)	0.138 (0.052)	0.157 (0.026)	0.211 (0.029)	0.202 (0.025)	0.054 (0.039)	0.045 (0.036)
Fourth Decile	0.275 (0.039)	0.413 (0.030)	0.439 (0.033)	0.138 (0.049)	0.164 (0.051)	0.179 (0.029)	0.245 (0.030)	0.276 (0.031)	0.066 (0.042)	0.097 (0.043)
Fifth Decile	0.329 (0.047)	0.450 (0.039)	0.505 (0.039)	0.121 (0.060)	0.176 (0.061)	0.237 (0.033)	0.268 (0.031)	0.392 (0.042)	0.031 (0.046)	0.155 (0.053)
Top Half	0.476 (0.024)	0.534 (0.017)	0.573 (0.017)	0.059 (0.030)	0.098 (0.030)	0.500 (0.027)	0.586 (0.018)	0.602 (0.017)	0.085 (0.032)	0.101 (0.032)
Panel G: Washing Machine					Panel H: Dryer					
First Decile	0.352 (0.047)	0.409 (0.036)	0.473 (0.040)	0.058 (0.060)	0.121 (0.062)	0.210 (0.036)	0.250 (0.033)	0.361 (0.039)	0.040 (0.049)	0.150 (0.053)
Second Decile	0.530 (0.042)	0.528 (0.033)	0.519 (0.032)	-0.002 (0.053)	-0.011 (0.053)	0.375 (0.042)	0.379 (0.031)	0.423 (0.033)	0.003 (0.052)	0.048 (0.053)
Third Decile	0.547 (0.042)	0.542 (0.034)	0.570 (0.037)	-0.005 (0.054)	0.023 (0.056)	0.449 (0.040)	0.407 (0.035)	0.508 (0.037)	-0.042 (0.053)	0.059 (0.055)
Fourth Decile	0.538 (0.042)	0.531 (0.032)	0.606 (0.035)	-0.007 (0.053)	0.068 (0.055)	0.476 (0.042)	0.447 (0.033)	0.541 (0.037)	-0.029 (0.053)	0.065 (0.056)
Fifth Decile	0.604 (0.037)	0.625 (0.034)	0.695 (0.030)	0.021 (0.050)	0.090 (0.048)	0.479 (0.042)	0.563 (0.039)	0.633 (0.032)	0.083 (0.058)	0.153 (0.053)
Top Half	0.765 (0.020)	0.786 (0.014)	0.809 (0.014)	0.021 (0.025)	0.044 (0.025)	0.715 (0.022)	0.744 (0.016)	0.775 (0.016)	0.029 (0.027)	0.060 (0.027)

Notes: Between 1 and 2 percent of the sample have missing values for the number of rooms, bedrooms, and bathrooms. Otherwise, sample sizes are the same as those reported in Panel A of Table 8. All measures of rooms are equivalence scale adjusted. Number of rooms excludes bathrooms. The bootstrapped standard errors in parentheses are corrected for within

Table 10
Trends in Housing Characteristics, 1993-2003, Single Mothers without a High School Degree, American Housing Survey

	1993-1995	1997-1999	2001-2003	(2) - (1)	(3) - (1)
	(1)	(2)	(3)	(4)	(5)
Number of rooms	4.768 (0.043)	4.741 (0.049)	4.748 (0.047)	-0.027 (0.065)	-0.020 (0.064)
Number of bathrooms	1.124 (0.014)	1.147 (0.016)	1.155 (0.016)	0.023 (0.021)	0.031 (0.021)
Number of bedrooms	2.331 (0.028)	2.408 (0.031)	2.381 (0.029)	0.077 (0.041)	0.050 (0.040)
Unit has a working stove or range	0.989 (0.003)	0.990 (0.004)	0.993 (0.003)	0.000 (0.005)	0.004 (0.004)
Unit has a working dishwasher	0.140 (0.011)	0.153 (0.012)	0.187 (0.015)	0.013 (0.016)	0.047 (0.018)
Unit has working washer	0.520 (0.015)	0.526 (0.017)	0.576 (0.018)	0.006 (0.023)	0.056 (0.024)
Unit has working clothes dryer	0.309 (0.014)	0.366 (0.017)	0.420 (0.018)	0.057 (0.022)	0.111 (0.023)
Unit has working garbage disposal	0.198 (0.012)	0.175 (0.013)	0.250 (0.016)	-0.023 (0.018)	0.051 (0.020)
Unit has central air or room air	0.549 (0.015)	0.650 (0.017)	0.739 (0.016)	0.101 (0.022)	0.190 (0.022)
All toilets not working at some point in last 3 months	0.110 (0.009)	0.091 (0.010)	0.070 (0.010)	-0.018 (0.014)	-0.040 (0.013)
Water leak from inside in last 12 months	0.178 (0.012)	0.183 (0.013)	0.154 (0.013)	0.004 (0.018)	-0.024 (0.018)
Water leak from outside in last 12 months	0.150 (0.011)	0.118 (0.011)	0.127 (0.012)	-0.032 (0.016)	-0.022 (0.016)
N	1086	833	718		

Notes: Data are from the 1993-2003 waves of the American Housing Survey, which is administered biennially.

Table 11
The Value of a Representative Single Mother's Non-Market Time that Equates Utility
Before and After Welfare Reform

Panel A: 1993-1995 to 1997-2000						
	Consumption Deciles			Income Deciles		
	Change in Mean Consumption	Hours Change	$\Delta C/\Delta \text{Hours}$	Change in Mean Consumption	Hours Change	$\Delta C/\Delta \text{Hours}$
	(1)	(2)	(3)	(4)	(5)	(6)
First	\$ 374	310.43	\$ 1.21	\$ 2,171	231.49	\$ 9.38
Second	\$ 1,028	432.63	\$ 2.38	\$ 701	344.67	\$ 2.03
Third	\$ 1,025	516.84	\$ 1.98	\$ 1,104	529.93	\$ 2.08
Fourth	\$ 1,267	476.66	\$ 2.66	\$ 2,562	751.32	\$ 3.41
Fifth	\$ 1,126	452.46	\$ 2.49	\$ 3,080	476.77	\$ 6.46
Top Half	\$ 3,061	115.26	\$ 26.55	\$ 2,099	85.67	\$ 24.50

Panel B: 1993-1995 to 2001-2003						
	Consumption Deciles			Income Deciles		
	Change in Mean Consumption	Hours Change	$\Delta C/\Delta \text{Hours}$	Change in Mean Consumption	Hours Change	$\Delta C/\Delta \text{Hours}$
	(1)	(2)	(3)	(4)	(5)	(6)
First	\$ 227	499.86	\$ 0.45	\$ 428	206.08	\$ 2.08
Second	\$ 1,204	595.63	\$ 2.02	\$ 1,791	431.04	\$ 4.16
Third	\$ 1,249	608.10	\$ 2.05	\$ 1,994	638.28	\$ 3.12
Fourth	\$ 1,539	445.93	\$ 3.45	\$ 2,506	938.67	\$ 2.67
Fifth	\$ 1,214	379.98	\$ 3.20	\$ 1,702	478.76	\$ 3.56
Top Half	\$ 1,585	61.75	\$ 25.67	\$ 978	43.06	\$ 22.70

Notes: Column 1 reports the real change (year 2000 \$) in mean consumption between two periods for each decile in the top half of the consumption distribution. Column 4 reports the same measure for each decile in the top half of the distribution of after-tax income plus Food Stamps. Changes in hours are calculated using data from Table 1, Columns 6-8.

Table 12

Hours per Week Spent in Market and Non-Market Work Among Women, 1993 and 2003

	Single Mothers			Single Women without Children			Married Mothers			Diff-in-Diff	
	1993 (1)	2003 (2)	(2) - (1) (3)	1993 (4)	2003 (5)	(5) - (4) (6)	1993 (7)	2003 (8)	(8) - (7) (9)	(3) - (6) (10)	(3) - (9) (11)
Total Market Work	24.457 (2.704)	27.454 (1.109)	2.997 (2.923)	33.815 (1.349)	33.493 (1.019)	-0.322 (1.691)	23.467 (1.338)	23.095 (0.580)	-0.372 (1.458)	3.319 (3.377)	3.369 (3.266)
Direct Market Work	21.775 (2.448)	25.339 (1.034)	3.564 (2.657)	30.916 (1.246)	31.022 (0.959)	0.106 (1.573)	20.998 (1.200)	21.366 (0.539)	0.368 (1.316)	3.458 (3.088)	3.196 (2.965)
Total Non-Market Work	23.701 (1.806)	17.756 (0.610)	-5.945 (1.907)	15.898 (0.732)	15.178 (0.495)	-0.720 (0.883)	23.101 (0.805)	23.905 (0.360)	0.804 (0.882)	-5.225 (2.101)	-6.749 (2.101)
Food Prep & Housework	13.665 (1.335)	11.384 (0.476)	-2.281 (1.417)	8.899 (0.518)	8.253 (0.344)	-0.646 (0.622)	15.520 (0.633)	16.104 (0.306)	0.583 (0.703)	-1.635 (1.548)	-2.864 (1.582)
Shopping & Obtaining Goods & Services	9.272 (1.152)	5.780 (0.323)	-3.492 (1.197)	6.180 (0.469)	6.352 (0.345)	0.173 (0.582)	6.513 (0.462)	7.179 (0.196)	0.666 (0.502)	-3.664 (1.331)	-4.158 (1.298)
Total Non-Work Time	119.8 (2.419)	122.8 (0.997)	2.948 (2.616)	118.3 (1.204)	119.3 (0.943)	1.042 (1.529)	121.4 (1.237)	121.0 (0.507)	-0.432 (1.336)	1.906 (3.030)	3.380 (2.938)
Leisure	111.5 (2.484)	108.9 (0.992)	-2.664 (2.675)	113.0 (1.190)	113.6 (0.931)	0.654 (1.511)	112.7 (1.242)	107.2 (0.505)	-5.414 (1.341)	-3.318 (3.072)	2.750 (2.992)
Child Care	5.189 (0.696)	9.434 (0.432)	4.246 (0.819)	1.781 (0.250)	0.799 (0.159)	-0.982 (0.296)	5.469 (0.379)	10.274 (0.234)	4.805 (0.446)	5.227 (0.871)	-0.559 (0.933)
Education	0.964 (0.639)	1.481 (0.292)	0.516 (0.702)	1.603 (0.344)	1.099 (0.203)	-0.504 (0.400)	1.427 (0.332)	0.661 (0.089)	-0.766 (0.343)	1.020 (0.808)	1.282 (0.782)
N	128	772		628	1,090		540	2,586			

Time use data come from the NTUS (1992-1994) and ATUS (2003). Samples include women between the ages of 18 and 65 inclusive who are not retired and are not full-time students. The single mother sample includes those without any other adults present (also excludes single mothers living with own children older than 17). Single women without children sample includes only those living alone. Total Market Work includes Direct Market Work (time working in main job) plus other work related activities and travel time related to work. Total Non-Market Work includes food preparation, both indoor and outdoor housework, shopping, and obtaining goods and services. Total Non-Work Time includes time spent in Leisure, Education, and Child Care as well as other activities such as job search while unemployed. Leisure includes leisure time as well as time spent on eating, sleeping, civic activities, religious activities, volunteering, pet care, gardening and personal care.

Table A1

The Fraction of All Women 18-54 in Different Family Types, Current Population Survey, 1994 - 2003.

	Single Mothers Living Alone	All Single Mothers	Married With Children	No Children Under 18	Other
	(1)	(2)	(3)	(4)	(5)
1993	0.088	0.129	0.369	0.464	0.038
1994	0.086	0.132	0.369	0.460	0.040
1995	0.084	0.131	0.366	0.462	0.041
1996	0.084	0.131	0.359	0.470	0.041
1997	0.088	0.131	0.358	0.469	0.042
1998	0.078	0.127	0.357	0.475	0.041
1999	0.078	0.126	0.350	0.484	0.041
2000	0.075	0.123	0.350	0.485	0.043
2001	0.073	0.118	0.348	0.493	0.041
2002	0.085	0.123	0.348	0.485	0.044
2003	0.086	0.124	0.347	0.485	0.043

Notes: Data are from the March CPS. Years refer to time of survey. Column 1 is a subset of Column 2. Column 2 includes female family heads with at least one own child under 18. Column 3 refers to married women with at least one own child under 18. Column 4 includes all women living in families with no children of the reference person that are under 18. Column 5 includes childless women who are not a family head and who live in a family with at least one child under 18. All estimates are weighted using individual level weights.

Table A2

Percentiles of Annual Consumption and Income, by Number of Children, 1993-2003, Single Mothers,
Consumer Expenditure Survey

	Single Mothers with One Child			Single Mothers with Two Children			Single Mothers with Three or More Children		
	1993-1995	1997-2000	2001-2003	1993-1995	1997-2000	2001-2003	1993-1995	1997-2000	2001-2003
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Consumption Percentiles									
5th Percentile	7,020 (312)	7,100 (306)	6,919 (242)	6,662 (397)	8,021 (228)	7,869 (302)	8,491 (425)	7,673 (224)	8,256 (534)
10th Percentile	8,961 (338)	9,329 (259)	9,783 (406)	8,447 (179)	10,252 (186)	9,817 (329)	9,839 (306)	9,713 (356)	10,483 (291)
20th Percentile	11,682 (415)	12,277 (305)	12,970 (414)	11,202 (355)	12,783 (301)	12,913 (334)	12,031 (285)	12,342 (282)	13,377 (411)
30th Percentile	14,958 (430)	14,943 (396)	15,661 (343)	13,713 (313)	15,484 (303)	15,534 (380)	13,813 (388)	14,386 (262)	15,095 (183)
40th Percentile	17,440 (446)	17,700 (323)	17,883 (302)	15,813 (327)	18,328 (357)	17,936 (339)	15,354 (380)	16,476 (289)	16,979 (325)
50th Percentile	19,804 (295)	20,534 (453)	20,200 (367)	18,103 (383)	21,184 (404)	20,357 (397)	17,473 (436)	18,654 (389)	19,295 (432)
60th Percentile	22,094 (522)	23,065 (335)	22,486 (293)	20,556 (545)	24,366 (526)	23,378 (562)	20,935 (801)	21,075 (426)	21,668 (468)
70th Percentile	25,105 (488)	26,033 (382)	25,374 (309)	23,813 (528)	28,346 (525)	26,972 (500)	24,376 (778)	24,205 (623)	24,332 (483)
80th Percentile	28,722 (517)	30,743 (520)	29,077 (505)	27,948 (787)	33,923 (661)	31,985 (739)	29,909 (770)	29,783 (1,091)	28,293 (772)
90th Percentile	34,671 (770)	37,500 (850)	35,480 (726)	36,315 (933)	42,084 (734)	40,285 (1,240)	34,922 (1,539)	41,021 (1,645)	34,799 (1,012)
Income Percentiles									
5th Percentile	4,531 (430)	2,950 (448)	3,567 (380)	4,729 (441)	3,902 (360)	3,558 (687)	5,175 (381)	3,245 (542)	3,675 (676)
10th Percentile	5,842 (280)	5,626 (338)	5,593 (513)	5,814 (340)	5,783 (482)	5,949 (512)	6,242 (359)	5,483 (343)	6,186 (443)
20th Percentile	8,059 (391)	8,970 (422)	9,025 (515)	8,112 (315)	9,230 (424)	9,874 (379)	8,993 (456)	8,066 (338)	8,843 (368)
30th Percentile	10,401 (858)	11,884 (502)	12,374 (599)	9,810 (457)	11,999 (535)	12,207 (554)	10,731 (372)	10,201 (456)	11,406 (515)
40th Percentile	13,857 (678)	15,012 (608)	15,366 (569)	11,668 (498)	15,059 (619)	15,151 (687)	12,340 (523)	12,398 (514)	13,464 (738)
50th Percentile	16,402 (700)	18,136 (732)	19,351 (897)	14,630 (869)	18,463 (796)	19,353 (833)	14,039 (481)	14,376 (506)	16,394 (754)
60th Percentile	20,988 (1,177)	21,593 (664)	22,540 (1,080)	18,177 (977)	21,983 (713)	22,710 (651)	15,327 (707)	16,744 (765)	18,938 (617)
70th Percentile	24,892 (1,005)	25,376 (812)	27,078 (937)	22,094 (921)	26,571 (1,269)	27,213 (916)	19,055 (1,357)	20,480 (932)	21,775 (936)
80th Percentile	30,608 (1,199)	30,756 (1,389)	32,036 (1,259)	28,244 (1,781)	32,598 (1,543)	32,302 (1,624)	23,187 (1,708)	24,742 (1,789)	27,049 (1,410)
90th Percentile	37,637 (1,607)	41,557 (1,336)	41,246 (1,813)	37,154 (2,516)	42,363 (2,107)	47,637 (2,076)	32,086 (2,704)	38,036 (3,084)	36,291 (2,403)
N	1,131	1,740	1,547	1,246	1,632	1,536	698	1,098	982

Notes: Dollar figures are expressed in year 2000 dollars. The bootstrapped standard errors in parentheses are corrected for within family dependence.